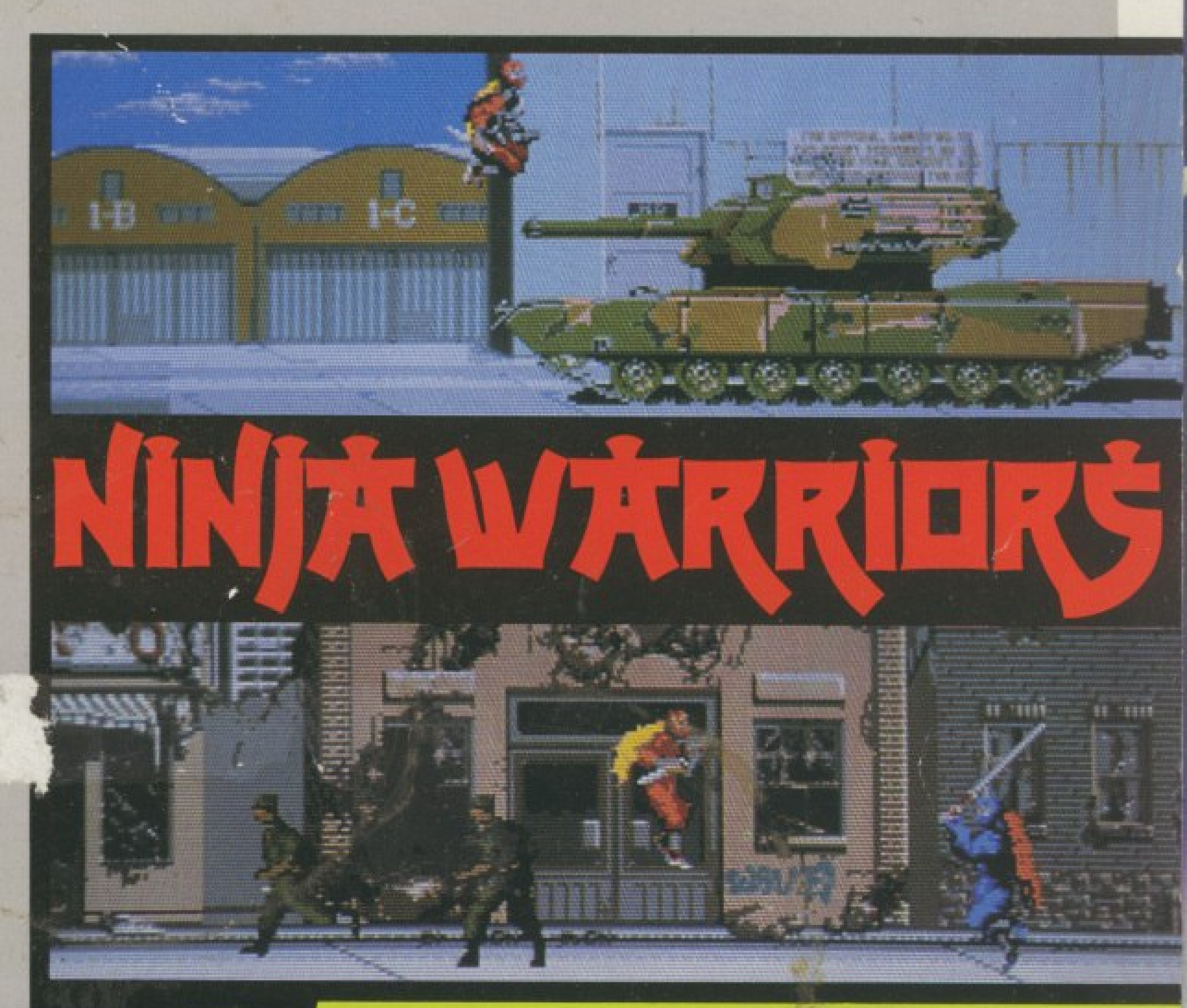
Volume 2
Number 6
November 1989
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AMIGA COMPUTING









November 1989

AMIGA COMPUTING

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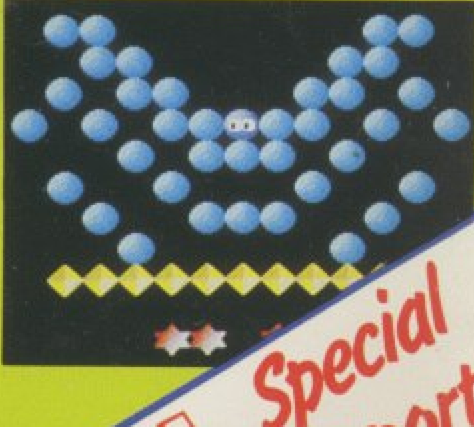
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*Full instructions are in the November issue of **Amiga Computing***

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Screenshots from Amiga version





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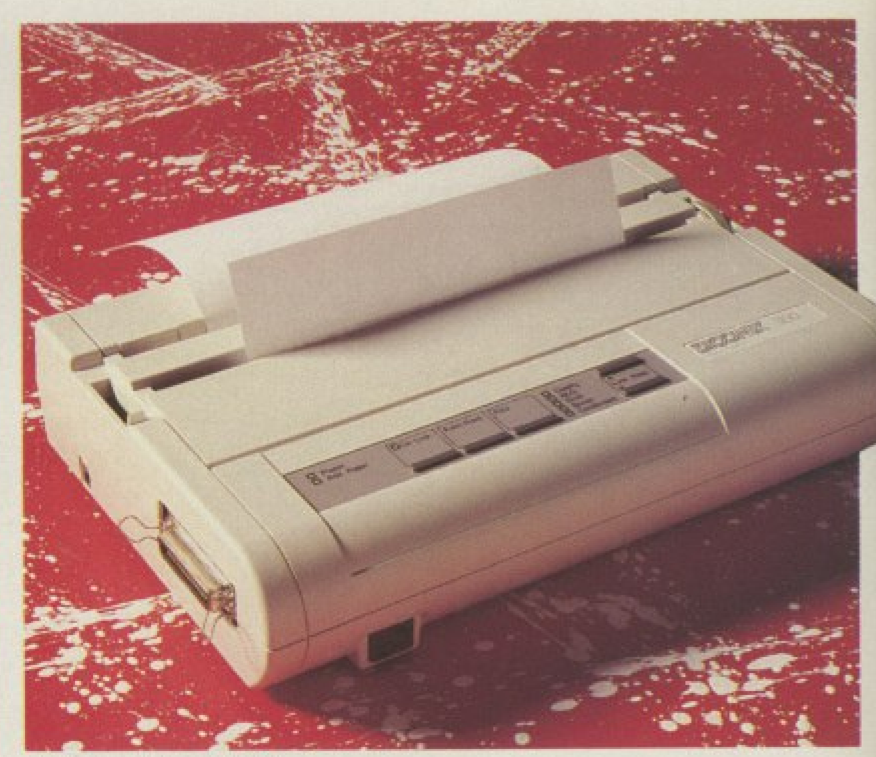
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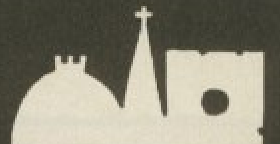
Making a splash . . . Page 49



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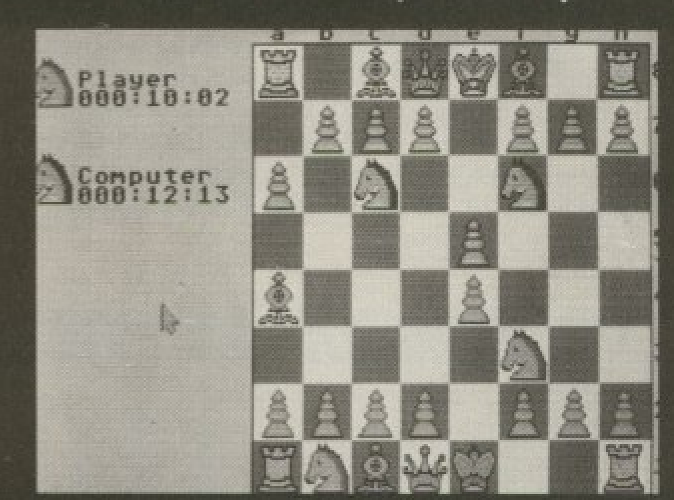
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AMIGA SCENE

Joining the big league

CONNECTING computers is big business. RS232 is fine for linking two machines to play Populous, but when you want a really big network and have a lot of data to transfer something really meaty is needed.

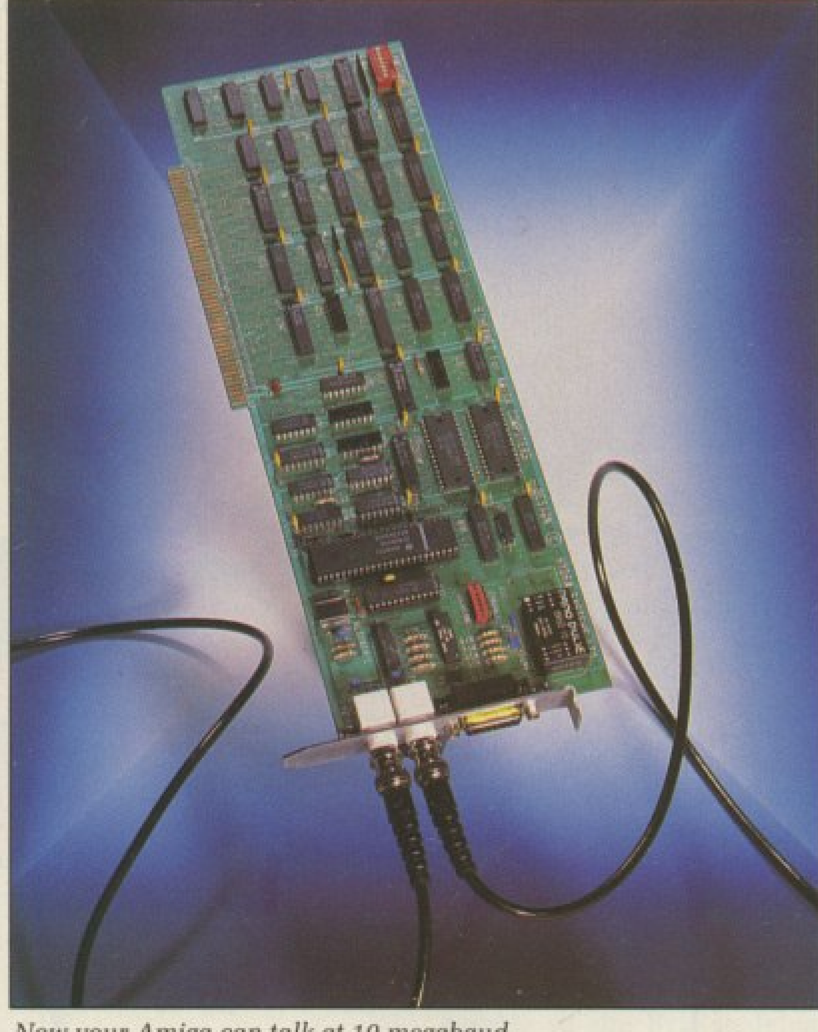
The big boys use Ethernet to link workstations to mainframes, PCs to PCs and most industrial computers.

Hydra Systems, a British company, has developed an Ethernet card for the Amiga which provides compatibility with Amiga and industry standard file systems.

The link is up to 1,000 times faster than other networks, making it an effective way for a number of Amigas – or any other machine – to share a hard disc.

There is a card version for the A2000 with a cheaper external unit for the A500. Such a set-up is ideal for educational establishments which often want to link large numbers of computers. Ethernet can cope with up to 8,000 users at a time.

The software has been written by Perihelion to integrate well with the Amiga operating system, while Hydra has developed the hardware which is already installed at a number of clients.



Now your Amiga can talk at 10 megabaud

Hydra has a long history of producing Commodore networks, which made the Pet a sensible solution for businesses which needed a multi-user system.

Ethernet will take the Amiga into advanced fields where it can be used as a fully blown workstation. For more details contact Hydra Systems on 0203 471111.

Track on new tack

AMIGA specialist Track Computer Systems (0773 531991) has moved into multi-format with the opening of its first retail outlet in Derby city centre. It hopes to obtain authorised status for business sales of Amiga 2000s.

We name hard drive winners

YOUR response to the Vortex hard drive competition was tremendous, with nearly 4,000 entries. And we had to open them all because a fool of an editor forgot to ask for entries to be marked with the name of the competition.

It was interesting to see how far flung some readers are. Lots are in the armed forces, we had a big response from Scandinavia and one entry from Tehran. A large number of forms were rejected for cheating.

All the entries were put into a big plastic bag and jumbled up. The first one we drew was wrong – IBM invented the hard disc. The winners are:

Mark S. Smith from Belfast, Mr P. Lambert from Fakenham, Norfolk. I. Timson from Clitheroe, Lancs., Nigel L Jones from Guilford, Surrey, Mr K. P. Gray from Bexleyheath, Kent, and Claes Svensson from Sweden.

Congratulations to you all, 40 megabytes of joy will be dispatched to you.

Commiserations to everyone else. Thank you for entering.

Computer animation draws Festival crowds



Judging the entries

MARTIN LOWE of Amiga Centre Scotland is the driving force behind an annual exhibition at the Edinburgh International Festival which aims to transform computer art from the static to the dynamic and give the public a chance to use the same tools as the artists.

The first Exhibition of Computer Animation was held last year, and generated so much publicity that this year's event took place with more extensive advertising and better prizes. It was in three parts – an exhibition, a competition and workshops.

The exhibition consisted of 10 animations running on Amigas. Only one, Busy Bee, used an A2000. It showed a bee created with Sculpt-Animate 4D flying figures of eight in front of a Tom and Jerry cartoon stored on video disc. To help this along, the A2000 had 8 meg of ram.

The other animations used A500s expanded to 1 meg, and the favoured graphics package seemed to be Sculpt-Animate 4D. Animations of Heath Robinson style machines moving balls around in unlikely ways were popular.

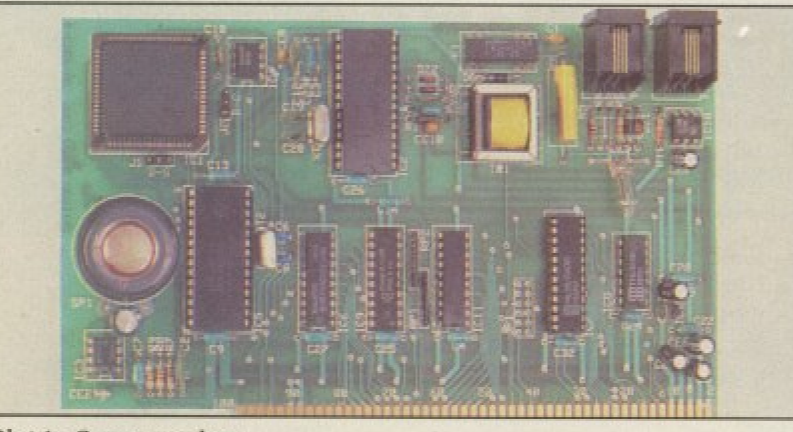
Trek showed the Starship Enterprise racing past Earth and firing laser guns. Luxo ▶

Amiga 2000 card modem

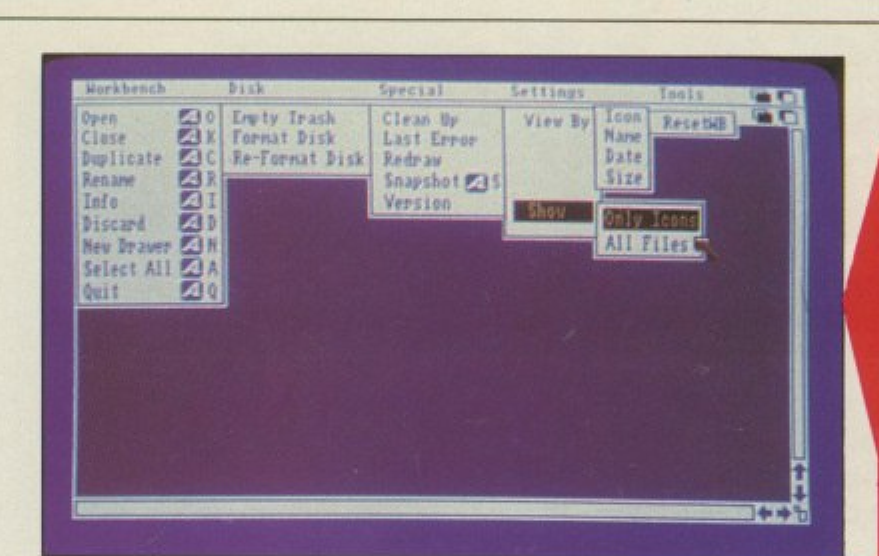
FRONTIER software, the company with an unrivalled reputation for sorting out customer's problems, has supplemented its range of Supra hard drives with an approved version of the Supra 2400zi internal modem. This fits into an Amiga 2000 slot, freeing the serial port for other uses.

The card works at 2400, 1200 and 300 bits per second. It fits into any Amiga slot, it is 100 per cent Hayes compatible, works with all popular comms programs and comes with software which allows you to use more than one modem at a time.

The price of £169.95 includes VAT. The modem is guaranteed for a year, and Frontier is running a 90 day money back offer. For more details call the company on (0423) 567140.



Slot in Supra modem



1.4 bridges the gap

WORKBENCH 1.4 will not be available until early next year, but it will be well worth waiting for. This first screen shot shows that one of the features it will include is a text interface. This helps bridge the gap between Workbench and CLI.

New games on MicroLink

NEWS of improved services came in thick and fast on the run-up to October 1 when communications service MicroLink left British Telecom for the independent Istel network.

They include the arrival of two major multi-user games.

Bloodstone has been hailed as the first of a new generation of multi-user games. It is a huge role-playing adventure capable of supporting millions of characters. It combines loving, killing, buying and selling in an environment which can be constantly changed.

Federation II has more than 900 locations and has been described as a cross between Monopoly and Star Trek.

Following the changeover on October 1, 98 per cent of people in the British Isles can now access MicroLink for the cost of a local telephone call.

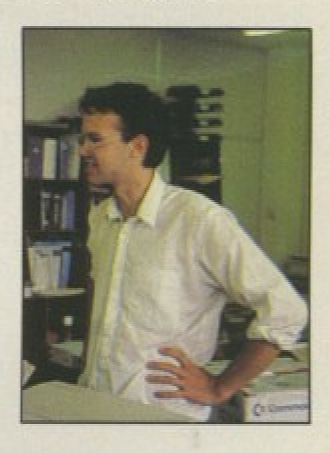
Micro on the air again

AMIGA owners who missed the first broadcast will have a second chance to listen to Radio Four's computer series Applying The Micro.

"This series looks at some of the newest practical uses for micros in business, music, education and in our daily lives and examines their potential", said producer Clive Williamson.

Transmission dates are Saturdays October 14, 21, 28 and November 4 at 5pm. The four programme titles are Computers Everywhere, Computers in Business, Micros in Education and The Musical Micro.

Green joins the team



HELPING to keep *Amiga Computing* the best read around is Nic Veitch. He has been working freelance at the magazine for some while, having written both serious reviews, like the one of Sculpt- Animate and loads of games reviews under the pseudonym of Green. You can usually spot one of his reviews by the Pink Floyd lyric buried in the text. His favourite game so far is Falcon, and his least favourite is Stag (easily). Nic has already been sent on a number of missions, including a visit to interview Elvira. Sounds fun – read about it in Amiga Arcade.

From page 7

Teenager depicted two Anglepoise lamps playing table tennis.

Franklin Fly was the most imaginative demo using Deluxe Paint III. It showed a fly buzzing around landscapes, through windows, and finally landing on the Queen's nose, causing her to roll her eyeballs.

The competition attracted 20 entries on disc and video tape. They were to be judged by three experts from different disciplines: Len Breen of Middlesex Polytechnic, which specialises in research into computer graphics, Nick Masters, a TV production editor, and Jack Gramon, a graphic designer.

The prizes were impressive, including an A590 from Commodore, a genlock from Marcam, a graphics tablet from Techex, six copies of Photon Paint from Micro Illusions, two copies of DigiPaint 3 from Newtek, and a day in a video studio from Advanced Video Technology.

Despite suffering from the programmer's voice-over in a heavy German accent and the after effects of NTSC to PAL conversion, an exhibition program on video drew crowds. Caligari is billed as the first 3D graphics program with a 3D (solid graphics, not wireframe) editor, rather than 2D windows. It looks fast, easy to use and effective.

Most of the people who took part in workshops had never used a computer before, so the shop's staff gave half hour courses on Deluxe Paint III. This was enough for several people to wave their chequebooks.

Despite the cramped premises the second Exhibition of Computer Animation was most enjoyable, and should have persuaded visitors to think beyond the Spectrum and accept that the Amiga, alone among personal computers, can produce stunning, lifelike animation.

ParSec's progress

GRAPHICS professionals will welcome the Amiga version of the powerful ParSec graphics board which will be ready by the end of the year.

That's the promise of Elmtech Research (021-472 5719) which has been bombarded with pleas from Amiga users since ParSec was developed for the Atari ST.

Martin Lockhart of Elmtech told Amiga Computing: "ParSec for the Amiga is the next project we will be looking at. Once we go into full production for the ST and get rid of a lot of back orders, work will start on the Amiga and we are confident that it will be ready by the end of the year. We will be selling it for £918".

ParSec is described as a single board microcomputer utilising Texas Instruments TMS 34010, a 32 bit processor running at 50MHz at a speed of 6.25mips.

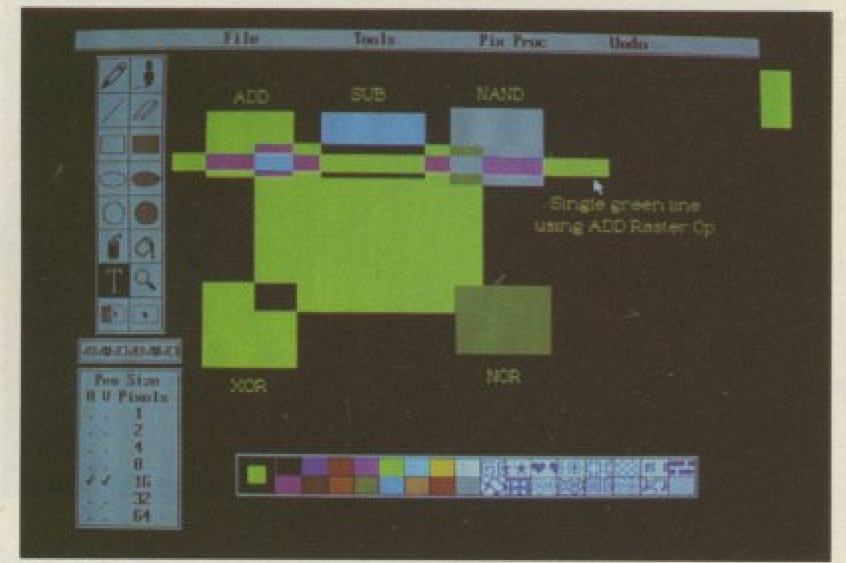
Elmtech's specifications say its screen resolution is programmable from 640 x 480 to 1024 x 768 with a choice of 16 colours a line from a palette of 4096 for the basic 4768 model and 256 colours a line from a palette of 16,777,216 on the 8768 upgrade.

Genlock and digitiser modules are also scheduled for release by the end of the year, aimed at cost effective production of broadcast quality graphics.

The ParSec can communicate via SCSI ports, allowing for the connection of mass storage devices such as CD rom/ram, video discs and hard discs.

A standard RS232 implementation will provide for hard copy output to include XY plotters, laser, dot matrix and colour thermal transfer printers. Input devices can also be supported including graphic tablets and mouse controller.

Applications currently under development include a 3D CAD/CAM package, a molecular modelling program, a Unix shell with the possibility of X-Windows and an art program Chimera f(x) which is intended to compete with Quantel, Sun and the like.



Parsec is on its way

Epyx designers move on

DAVE Morse and R. J. Mical, two of the original designers of the Amiga, have been laid off by Epyx along with 85 per cent of the staff. The company was responsible for Summer Games and a number of other Amiga hits.

Dave and RJ went to Epyx after they left Commodore – which had then taken over the former Amiga company – where they were responsible for the development of the Amazing Lynx handheld games machine, which is to be manufactured and marketed by Atari.

This leaves the Lynx development system, which is based on an Amiga 2000, unfinished

Amigas run satellite TV game

TWO Amiga 2000s have played a vital part in one of the launch programmes for the British Satellite Broadcasting TV network due to start up next year.

The Satellite Game will be one of its first offerings and real-time 3D animations for the programme are being produced with the Amigas by software house Incentive.

Contestants will be in teams of three, aged from 11 to 16 and will take on the adventure fantasy game in the studios of Anglia Television.

They will have to meet the challenge of Enigma, a massive satellite bomb sent to threaten the earth by an alien intelligence.

Incentive was asked to develop the animations



after the programme producer, Tim Child of Broadsword Television Productions, was impressed by the graphics of its Driller game.

"What was needed was a total solid 3D environment and he felt we were the people to do this", said Incentive's Andrew Taite. "We are using two Amiga 2000s with 68020 accelerator boards to speed them up and our Freescape system to make a really lifelike animated environment in which the players can move around".

Keen games players will stand a good chance on this programme which is very similar to traditional computer games. Broadsword are ing for teams to take part. They must be between 11 and 16 by January 1, 1990 and should apply to Broadsword Television Productions, Anglia TV, Anglia House, Norwich, NR1 3JG.

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Field 10 : Del Addr 4
Field 11 : Del Addr 5
Field 12 : Telephone
Field 13 : Fax
Field 14 : Contact
Field 15 : Invoice Number
Field 16 : Order Ref
Field 17*: Quantity 1
Field 18 : description 1
Field 19*: Unit Cost 1
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Designing a new layout with Prodata

Prodata gets the vote

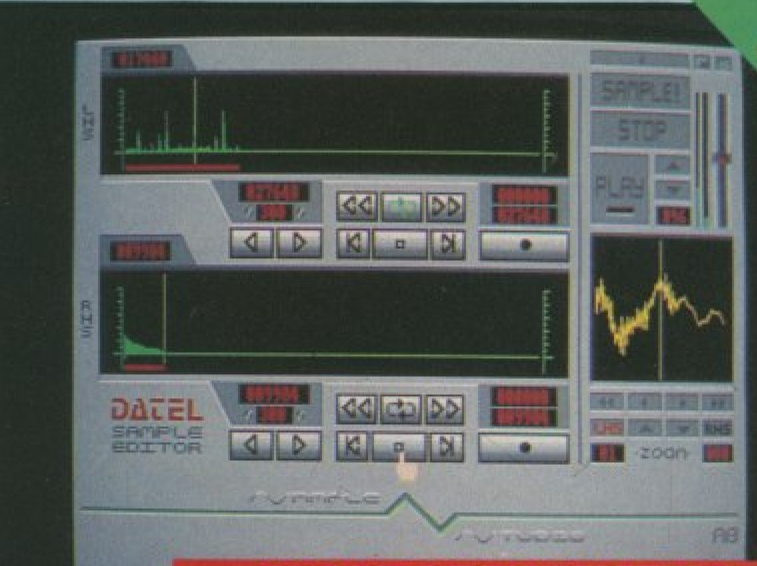
FIRST with the news, *Amiga Computing* featured a story last month on Profile, the new database management program from Arnor designed to complement top-selling word processing package Protext.

Profile was a working title for this new product, but since then Arnor has decided to market it under the name of Prodata.

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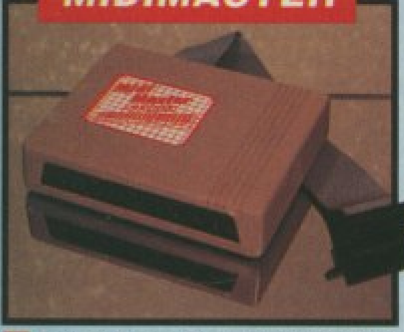
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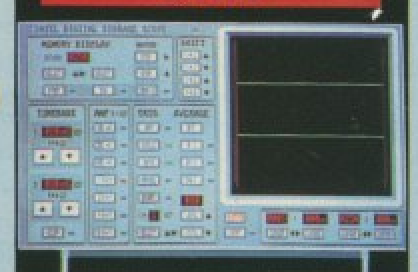
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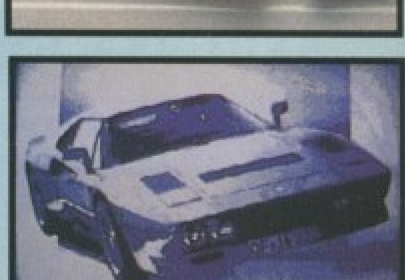
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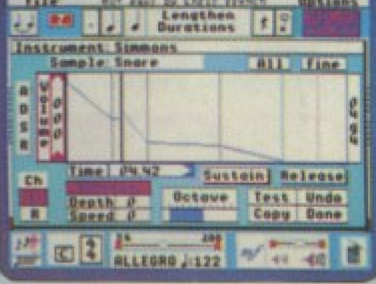
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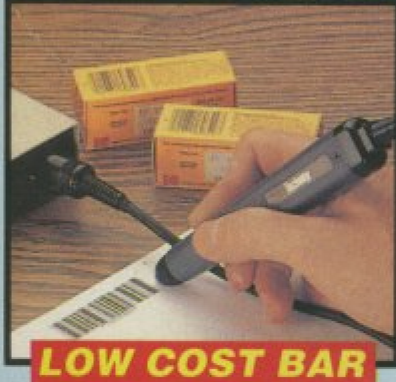
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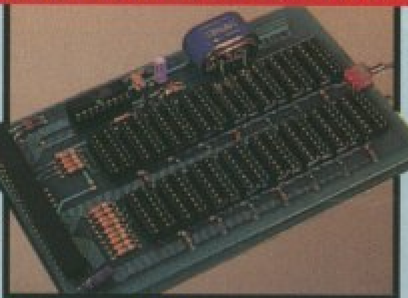
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Amiga Arcade

Looking good for Christmas


Sales Curve managing director Jane Cavanagh believes that Ninja Warriors will climb to greater heights than Silkworm

VIRGIN'S big shot at the Christmas number one slot is The Sales Curve's conversion of the Ninja Warriors coin-op. It is being coded by Random Access, the same team that brought you Silkworm (96%, *Amiga Computing, July 1989*), and will feature some very advanced features to keep the action going at a breakneck pace.

Like most 16 bit games these days, backdrops and sprites will be loaded in as and when they are needed. Where Ninja Warriors will differ from the rest, however, is that it will load the next sequence on that level while you are still finishing off the baddies on the current screen.

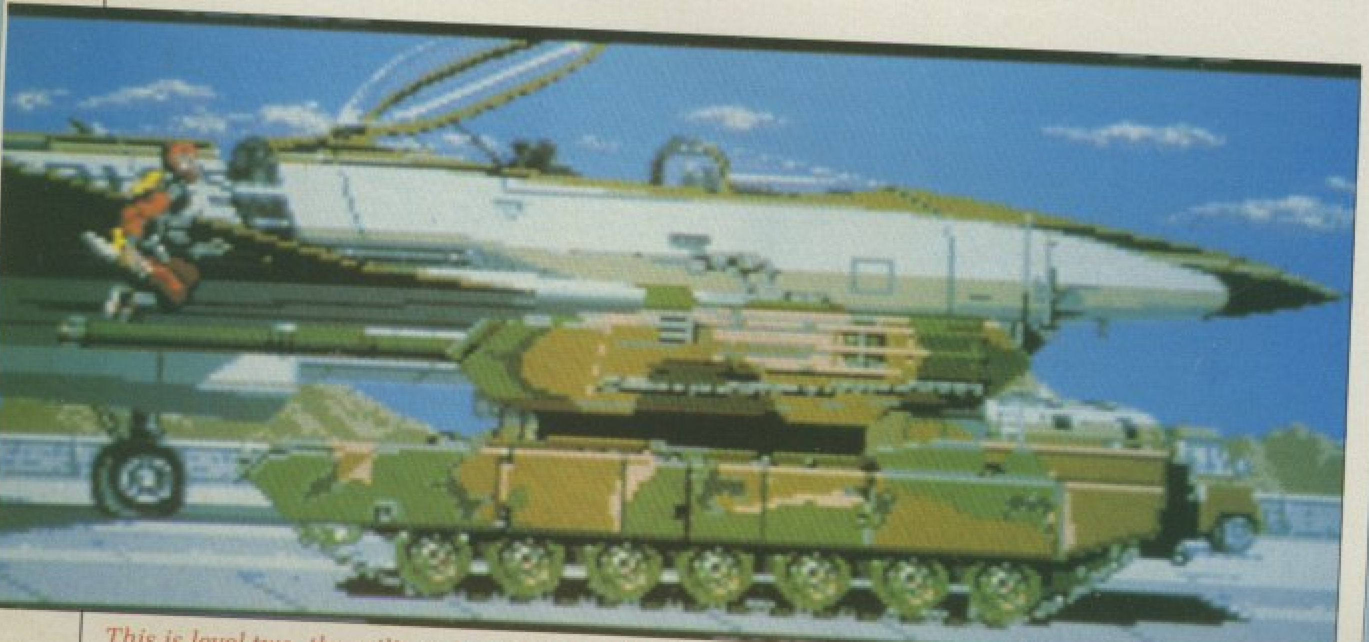
Incredibly the gameplay does not slow down while this is happening. Well, not so you'd notice. If you study the sprites very carefully you may detect a slight hesitation in movement, but this is totally transparent to the player in the heat of the battle.

The game is set in a future world where the evil dictator Bangler controls the army, police and criminal underworld.

Some brave members of the oppressed population decide to rebel. In desperation they build two lethal fighting machines – the Ninja Warriors.

Armed only with a knife and a limited supply of shuriken each, the two robotic freedom fighters – for this is a one or two-player game – have to battle their way through six levels of enemies in order to confront and kill the dictator in his lair.

Each scene will pit you against Bangler's massed troops – knifemen, gunmen, grenade launchers and fierce dogs – plus additional enemies, including a hunchbacked ground spider, the ninja swordlady, a


This is level two, the military base. The giant tank puts in a re-appearance on level four.


It could have been worse – it could have been a Dragon 32

ROLE-playing freaks will soon be able to get together in groups of one to three to play Sword of Twilight, a new fantasy game from Electronics Arts.

Written by Freefall Associates, authors of the classic Archon, Sword of Twilight promises high quality graphics, an atmospheric soundtrack and sophisticated character interaction.

It is a world simulation involving characters with memories, attitudes and appetites, plus lands with time and tides.

"The program has a unique conversation system", says EA's user-interface Lesley Mansford. "It breathes life into the game's characters".

Watch out for it if you're going to the PC Show.

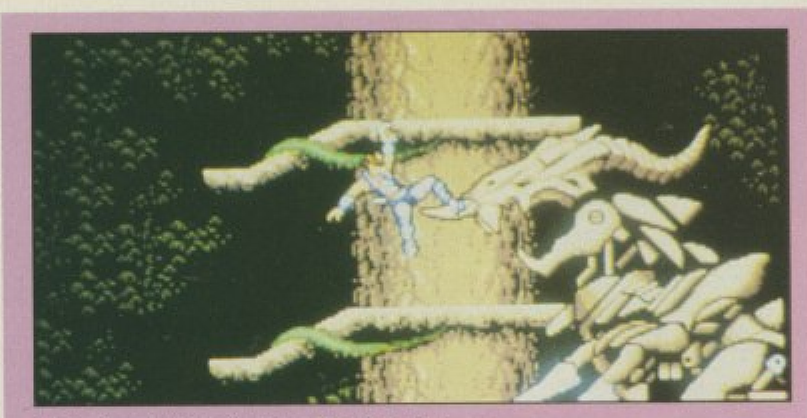
All the latest news on the games software scene

big dude called Iron Arm with an axe and ball and chain, a fire breather affectionately known as Death Breath, a sniper, some bats, a few laser firing robots and, of course, the giant tank.

The soundtrack is from the arcade machine, lovingly transcribed on to the Amiga by the programmer, Ronald Pieket Weeserick, using his own software written specially for the job.

The first level music has been commissioned and will definitely be there, the second level tune maybe. If you've played the coin-op, you know how good the music is. In Japan you can buy the soundtrack on cassette.

So watch out for Ninja Warriors in the run up to Christmas. We think it's gonna be hotter than July.



I bet she drinks Carling Black Label

FANCY infiltrating the Russian Red Army, battling with dinosaurs and having a go at a mechanical ape? And all this in the guise of a female? You do? Then what you need is Strider, the new coin-op conversion from Capcom.

Battle your way to the snow-capped peaks of Siberia, hack your way through the southern lowlands where jungle tribes lurk with sharp spears and poisoned arrows, then return to Moscow to face the Grand Master of the Red Army.

The future of the western world depends upon your success in this ultimate confrontation, it says here. And you play a sissy female? Hmmm. We're off to Australia just in case.

REVIEWED THIS MONTH

- 91% Continental Circus
- 89% Waterloo
- 83% Arthur – The Quest
- 82% Oil Imperium
- 73% Paladin
- 69% Beach Volley
- 63% Omni-Play Basketball
- 59% Steel
- 56% Demon's Winter
- 55% Black Magic
- 50% Battle Valley
- 49% Legend of Djel
- 39% Garfield – A Winter's Tale

MAX HACKS

- **Archipelagos**
- **Chariots of Wrath**
- **Dragon's Lair**
- **Forgotten Worlds**
- **Indiana Jones**
- **Out Run**
- **Populous**
- **The Krystal**

Running for a golden hat-trick

DESPITE the poor sales of Goldrunner II, which Microdeal blames on piracy, the company is excited about its new release, Goldrunner 3D, programmed by the same team that made Falcon a huge success.

So it'll come as no surprise to you that Goldrunner 3D resembles a flight simulator.

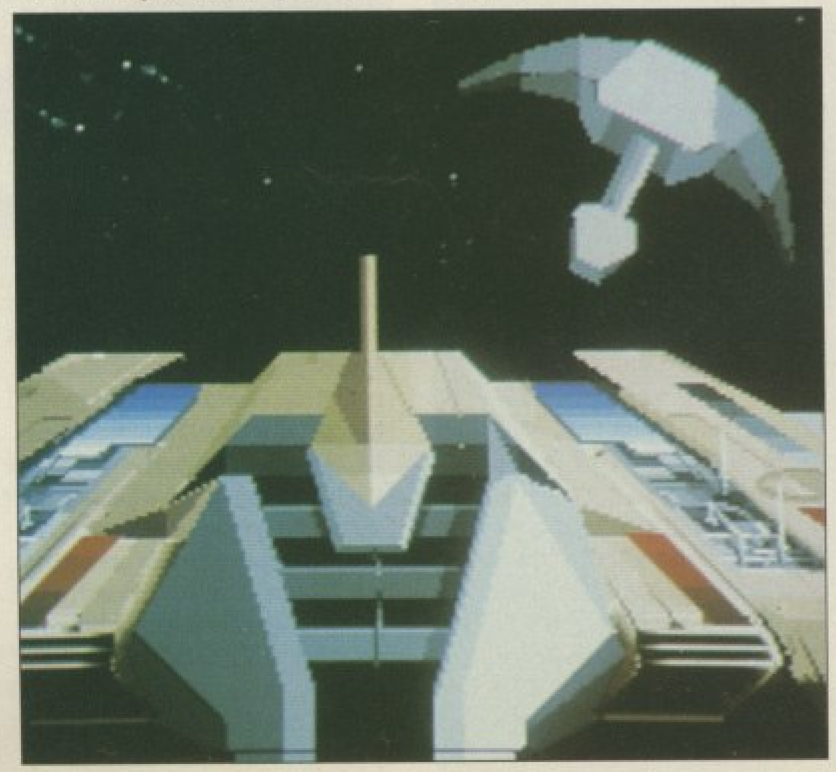
Graphics have been pushed well past their theoretical limits by use of a cunning screen splitting technique involving a mixture of 32 and 16 colour modes, giving a wide palette yet retaining high animation speed – 8 frames per second, enough to allow five big 3D baddies on-screen at once.

Listen out for the soundtrack – an inspiring 200k rendition of the Mars theme from Holst's Planet Suite by the popularly acclaimed David Whittaker.

Amiga Computing was given a sneak preview of what to expect. In a reversal of current trends, all the graphics were developed on the Amiga and ported across to the ST.

The game features some absolutely stunning animation sequences. The ship handles and feels much like the F-16 in Falcon.

It looks good, it sounds good, but will it play good? Watch this space to find out.



Microdeal calls them Rexxons, but that's a Klingon ship if ever I saw one

Gallup Chart

Pos	Title / Publisher / Price	Last month
1	New Zealand Story, Ocean, £24.99	7
2	Robocop, Ocean, £19.99	NE
3	Falcon Mission 1, Mirrorsoft, £19.99	4
4	Populous, Electronic Arts, £24.95	1
5	Kick Off, Anco, £19.99	3
6	Lombard RAC Rally, Mandarin, £24.95	10
7	Test Drive 2, Accolade, £24.95	NE
8	Falcon, Mirrorsoft, £29.95	9
9	Grand Prix Circuit, Accolade, £24.99	NE
10	Rick Dangerous, Firebird, £24.99	NE

Horrorsoft hypes it up


Two big bits for me, Elvira ... No, I said bits

I guess I took a wrong turning. Urghhh...

FIFTY years after the war to end all wars (part II), Britain is once again on the brink of invasion – this time one which she will no doubt welcome with open arms.

The threat comes from the multi-million dollar media machine that is Elvira, a cult figure in the States and Australia, whose worldwide popularity exceeds that of many heads of state. She certainly works harder than most of them.

After the offer of a rare one-to-one interview, the most expendable member of the staff (Green) was despatched Mayfairwards, equipped only with some essence of garlic and a list of every Van Helsing in the telephone book.

Starting out in a small Hollywood TV company, the Elvira character developed from a mixture of the terrible script she was given and Cassandra Peterson's natural comic ability. Not quite what the TV company wanted, but with eight years of fantastic success it is obviously what the public were after.

Enter stage left Tynesoft looking for someone to promote its wares in the colonies. Seeking advice from a New York agency, Tynesoft was told that Elvira was the star it needed (anyone who rates Attack of the 50ft Woman as a good film can't be all bad). A mutually beneficial deal was struck.

From a simple endorsement of Horrorsoft's Personal Nightmare, the relationship has developed to the point of an Elvira game, going under the same title as her film, Elvira – Mistress of the Dark – recently released on video over here.

So watch out for waves upon waves of Elvira merchandise – comics, records, even a pinball machine. Elvira confesses to be a bit of a pinball freak.

The game takes some ideas from the film and reworks them into a different plot. Elvira has inherited a ring and a castle in England where, shortly after moving in, she experiences some trouble with ghosts and the undead. The player assumes the role of a con man who has been contracted to clear up the matter.

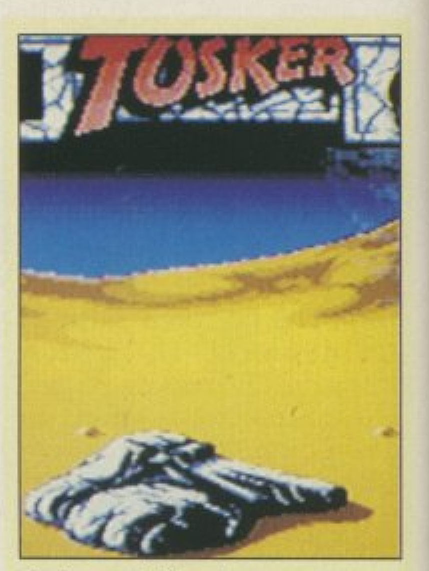
If you think that Cassandra Peterson took a back seat in all this, then you are wrong. Never one to sit back and relax, she insisted on taking an active role in the game's development.

"I re-wrote some of the script for my character", Cassandra told *Amiga Computing*, "and I made them change it from a necklace to a ring so it would tie in with the film better – things like that".

Expanding on the totally icon-driven nature of Personal Nightmare, the updated user interface now has "fluid" (as opposed to rigid) selection panels and more sensible control over objects.

The realtime action fight sequences feature 12 frames of animation each and, says Tynesoft, use more advanced combat rules than most current games.

In this land where adventure and role-play meet, more emphasis is placed on tactical advantage and the swings made rather than on a set of numbers claiming you are invincible.



Rock sand. Song by The Police, wasn't it?

TAKE one man whose sole aim in life is to complete the mission on which his father perished and sprinkle that with the savage danger dwelling on the African horizon – from restless nomads, angry natives and hungry cannibals, to bloodthirsty dinosaurs, lecherous animal life (that's what is says here!) and very unhappy witchdoctors.

All this adds up to System 3's new arcade adventure, Tusker – a three level jaunt in search of the much fabled elephants' graveyard.

Should be out by the time you read this.

The game is the first to take full advantage of Tynesoft's adventure creation system which allows everything to be written in plain English. This is realised in greater output and smaller development times, the graphics being the only hold up.

A Midi sound track is provided, enabling owners with suitable hardware to get extra enjoyment. A full and impressive four channels have been constructed by Jezz Woodroffe, ex of Black Sabbath and the Robert Plant band – you remember them, they come after Pink Floyd in the album racks.

Jezz is currently working on a new album which will feature a slightly re-mixed version of the Midi music from the game.

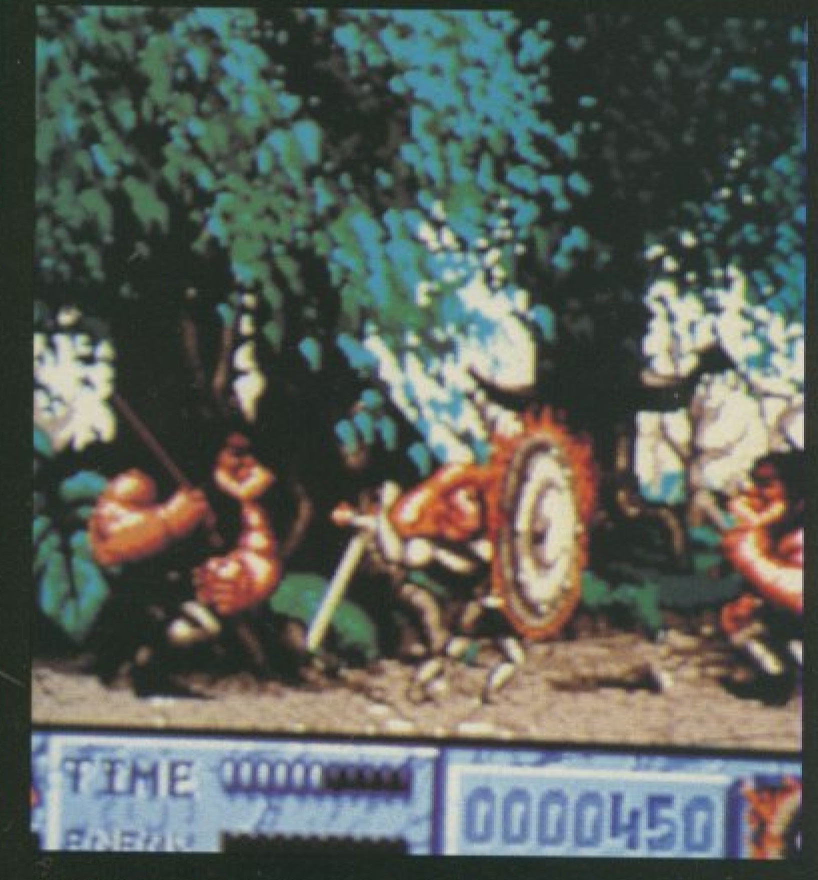
All this on five discs (so far) with a projected release date of Halloween.

One-knight stand

STORMING your way this Christmas will be Ivanhoe, an arcade style bash based on the legendary hero of the same name.

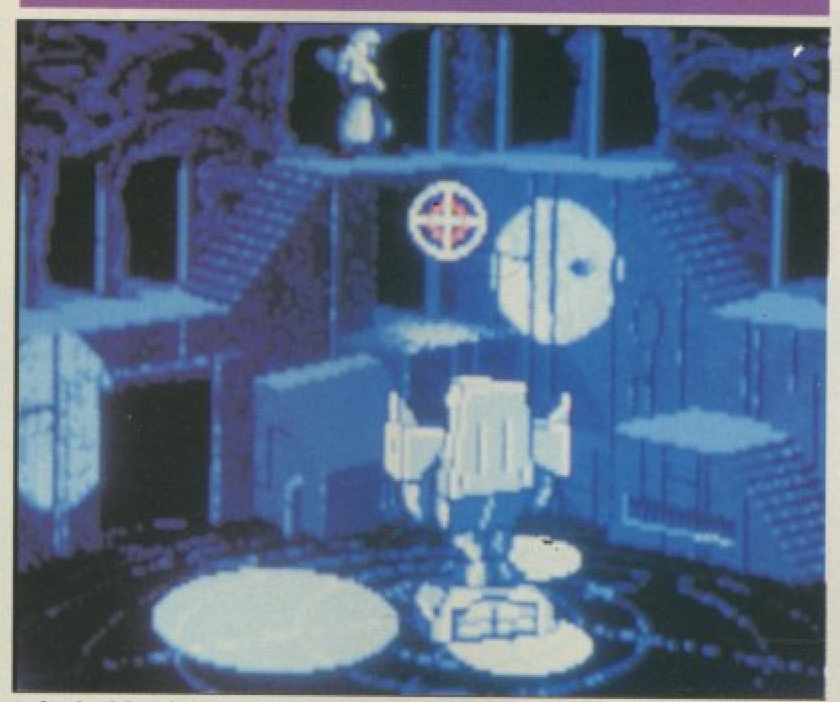
Developed by Ocean France and with graphics by a lady cartoonist who worked on the Asterix movie, in Ivanhoe you will be confronted by all manner of human and mythical creatures as you fight your way horizontally through the adventure.

Armed initially with but a sword and basic armour, you will have to defeat wizards, pirates, dragons, hunters and many more characters in order to complete the quest.



Ivanhoe? Looks more like Asterix to us

Your sister should know



It looks like this and it'll be out in November on the US Gold label



HE is credited with the biggest selling album of all time – more than 40 million copies sold – and has won eight Grammies, seven music awards, four video awards plus the BPI award for best international artist.

He performs sell-out concerts all over the world. Since 1980 he has achieved nine number one hits on the Billboard Hot 100 – more than any other artist this decade.

He has received an award from the President of the United States for his many amazing achievements.

He's big, he's bad, and he's signed with US Gold.

The question is: Who is he, and what's the name of the game?

Answers on a postcard please to: *Michael Jackson's Moonwalker Competition, Amiga Computing, North House, 78-84 Ongar Road, Brentwood, Essex, CM15 9BG.*

Bundles of T shirts and posters up for grabs. Closing date October 31, 1989.

Dangerous, daring and delinquent

KEEF the Thief was abandoned as a baby outside the Temple of Mem. All say ah. The priests attempted to train Keef in the ways of Mem – goody-goody stuff like battle and magic and all that – but he mastered none of them. Instead he trained himself to be a tea-leaf.

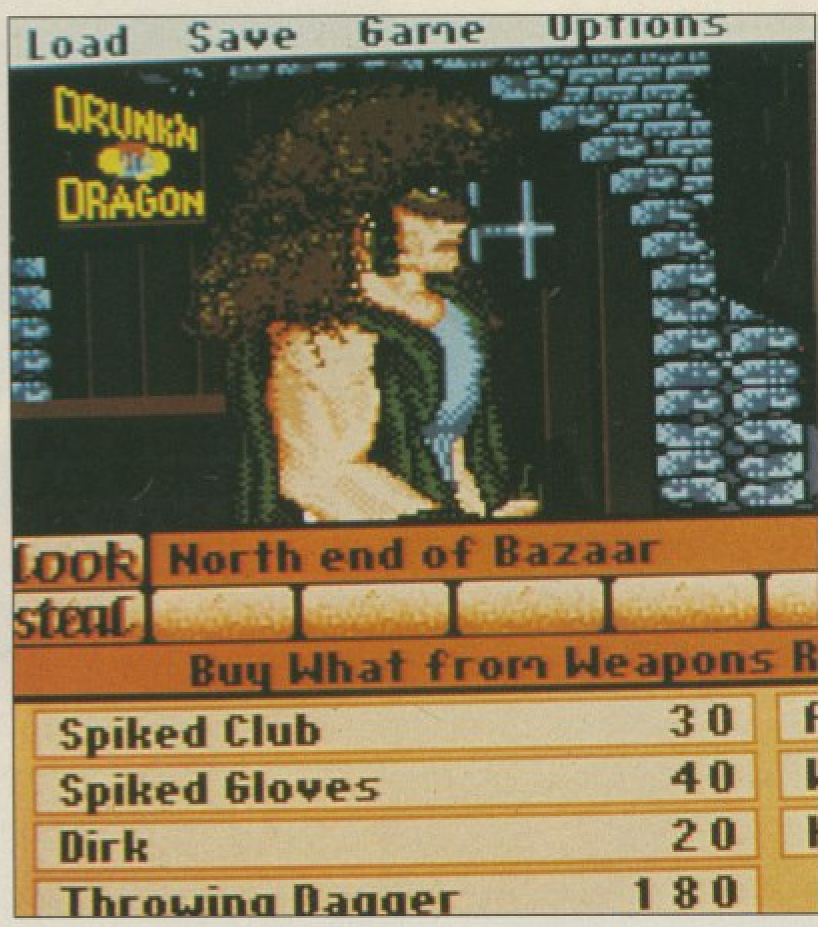
He was banished from the temple and left to survive in the Tri-city area, using his skill at thieving and his basic training in the priestly arts.

Exploring the city, he hears rumours of powerful weapons, strange cities and of Telloc the god-king who once ruled the city by virtue of a magic statue.

When he was overthrown the statue was broken into six pieces and – you guessed it – scattered about the kingdom. Keef decides to embark on a quest...

Electronic Arts PR person Lesley Mansford told *Amiga Computing:* "Keef the Thief features stunning graphics, great music and lots of humour".

Out in October some time, price £24.99.



We can't wait for this one

THE development of Mars Cops, the space age arcade adventure from Arcana, has been arrested for the fourth time.

We told you in September how two programmers had walked off the job and how company boss and chief programmer Max Taylor had locked himself away in a secret Edinburgh hideaway to finish the game. Well, the situation has changed yet again.

"We have now got someone else working on it", says Max. "We hope to have it ready by the end of the year".

Will we ever see it? Answers on a postcard please to...

Readysoft plays its ace


Ace guards his packed lunch in a scene from Don Bluth's animated epic

HOW can you possibly top Dragon's Lair? Simple, the same way as the arcade game did. The sequel to Don Bluth's animated arcade antics was Space Ace.

Predictably this has followed Dragon's Lair to the Amiga. The program has been written for Readysoft, the people who brought you Dragon's, and will be sold here by Entertainment International.

The plot is one of a brave space adventurer (you), a pretty girlie, and an evil man (no, not Nigel Lawson).

Rescue girl from dragon – sorry, man – and make off in your spaceship.

Expect it to cost squillions and use more discs than Sony makes in a good month, well six actually.

The ultimate golf sim

GOLF has always been a difficult game to simulate accurately on a computer. It's the huge number of factors that does it. In real life even the simplest thing – the flight of a ball, for instance – is affected by a multitude of parameters, in this case ranging from the physical characteristics of the ball itself through to the atmospheric conditions at the time of flight.

When designing Greg Norman's Shark Attack – Ultimate Golf, the programmers at Gremlin Graphics decided that the only way to produce a truly realistic simulation was to include as many of these factors as possible.

They took real holes and real courses and created accurate 3D models from them, including height and vegetation information. They simulated global weather conditions for all 12 months of the year. Then they took professional advice on how to create, not only a golf game, but a teaching aid as well.

At last, eight man-years later, they believe that the



The mathematically modelled world

simulation

product they have produced is worthy of the title Ultimate Golf.

The realtime animations of the golfer are digitised sequences of Greg Norman taking shots. Digitised sound effects accompany the action. And arguably the most important feature of any golf simulation, the screen update time, is faster than all its rivals – something of which the programming team is particularly proud.

The game features a multitude of levels, from a simple arcade style swipe-about to very accurate simulations of foursomes, greensomes, fourball and normal single games. Both matchplay and strokeplay scoring methods are implemented.

A computer caddy can give you advice on what club to select and how to use it. There are many different swing styles and spins to choose from, along with diagrams showing how the ball will travel. A true-to- life handicapping system ensures that the game gets harder as you get better.

If you want to check out the scenery there is the ability to walk around the course to visit every tree, bush, bunker, lake or piece of rough land.

Computer controlled players can be set at any rank from novice to professional. If you're feeling real lazy, just sit back and watch the game being played by four Greg Normans.

To top it off, a disc-based database will hold up to 100 players and their personal attributes. "All that is missing", says programmer Paul Blythe, "is the birdsong. And if we had more room, we'd have stuck that in too". It'll be out in November, so you'll have plenty of time to practise for the 1990 Ryder Cup team.

Walk like an Egyptian

SOMEWHERE in the labyrinths of the Eye of Horus, the new arcade adventure from Logotron, lies the awesome presence of your evil half-brother, Set. Such is Set's power that he can animate hieroglyphics, which peel off the murals and attack you.

Your quest is to search out the seven pieces of the late but great Osiris (your father) and return them to the proper burial chamber.

As if that plot wasn't enough to make you buy the game, Logotron is putting an entry form in every Eye of Horus to win a trip to Cairo. Yes, seven days (and nights) for two people, flight and three star hotel included. Can't be bad.

Jane Smith, Logotron's newly appointed marketing person, told *Amiga Computing*: "We chose Egypt because we felt it was more appropriate to Eye of Horus than Blackpool".



Very pretty, but will it have French gameplay?

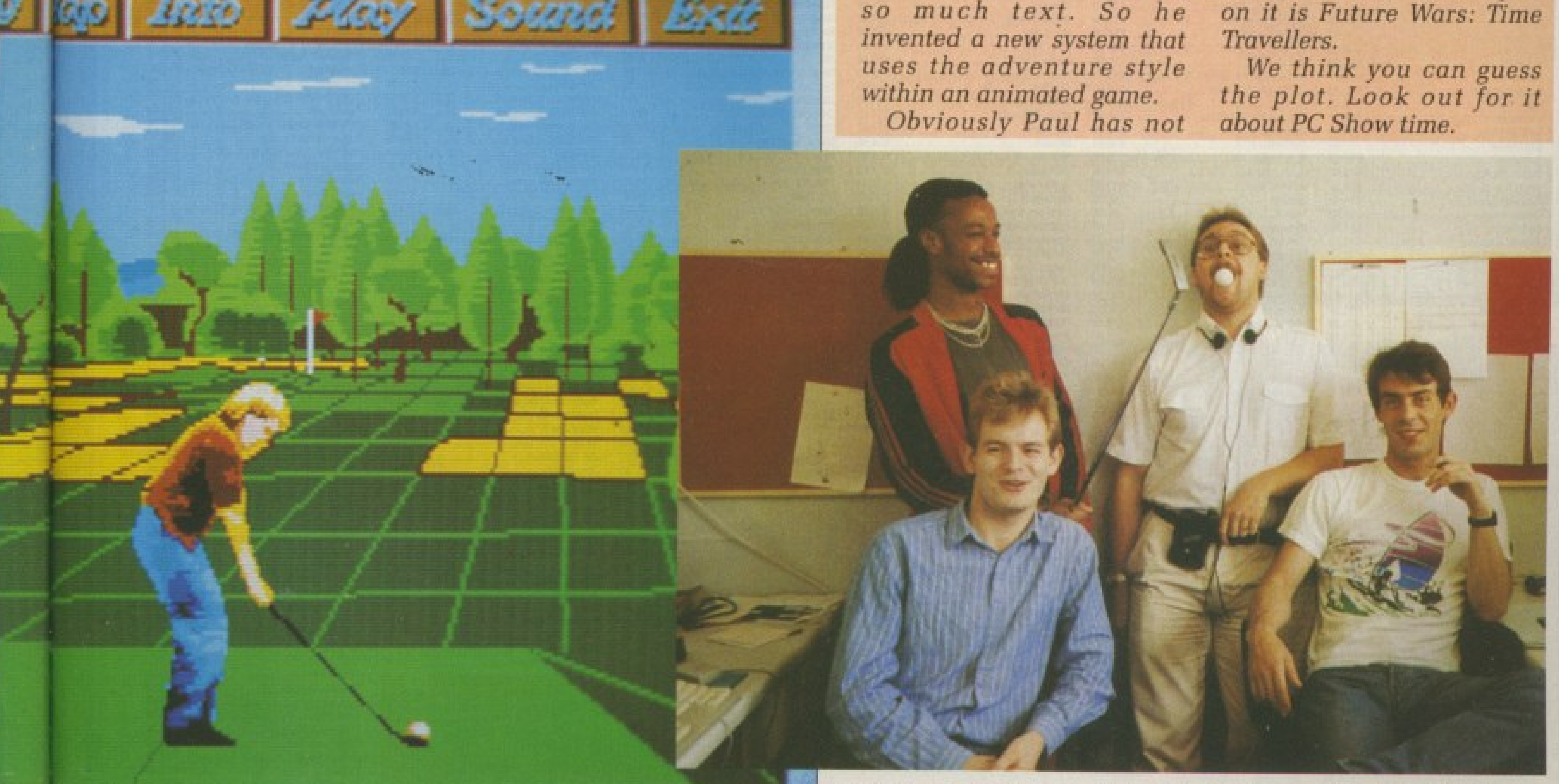
FOR three years French programmer Paul Cuisset has been quietly working on a new type of computer game.

He worked out, all by himself mind you, that more people would enjoy playing adventure games if they didn't have to type in so much text. So he invented a new system that uses the adventure style within an animated game.

Obviously Paul has not heard of Cinemaware – a similar system from the USA which spawned Defender of the Crown at the dawn of the Amiga.

Anyway, Paul has sold his system – Cinematique – to Delphine Software, and the first game to be developed on it is Future Wars: Time Travellers.

We think you can guess the plot. Look out for it about PC Show time.



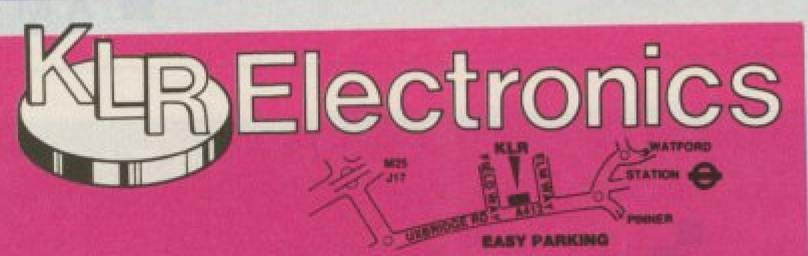
of Gremlin's Ultimate Golf

The Ultimate Golf team – Richard Hill takes a swing at Paul Blythe while Clive Branwell and Simon Blake ponder their personal handicaps

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OMNI-PLAY BASKETBALL

It's all about bouncing balls, isn't it?

YOU don't need to be seven feet tall and come from Harlem to play basketball. This seems to be the message from SportTime in this release, which aims to combine action with coaching strategy.

The game claims to offer a new system of simulation programs where additional modules can be added to your existing system by "clipping the coupon" and sending it to Uncle Sam (don't forget the zip code). A very interesting ploy, getting people to pay for additional features which should have been included in the original game.

The game setup is under the guise of installing separate modules – these are the modules that you have to pay extra for. Admittedly it may have been difficult to fit all those features in memory simultaneously, but it is still a bit much to ask people to pay for the same game more than once, no matter if you can view the court from above, from the side or from inside a cheerleader's T shirt.

SportTime claims that this is a step forward in games technology, as is its system of flow control, where instead of controlling your team at all times you merely take over at a crucial moment.

This makes it easier for them to program and harder for you to play, as your star player suddenly halts underneath the basket and stands motionless before disappearing under a tonne of opposing players. Should've been ready, shouldn't you.

Admittedly there are advantages to this system. It is possible to get used to it after a while, and having the computer do half of your moves does mean you can last out a match without the inevitable joystick wounds.

Aside from chosing the initial team, the coach has other important duties to perform. Strategic use of timeouts can swing the game, not only by giving you the chance to make team changes, but also by breaking up your opponents' attack. A keen eye for a bargain, and the willingness to torture your team in the training camp, are also useful.

Do well in the league and you get to travel all over the place for the playoffs. Which way is Wyoming? But the competition is tight for the glory spot at the top.



Two's company, Three's a basketball game

Players' performances also seems to depend on how important the match is – a very realistic feature.

Other features include recruiting your team from the various college leagues, so exploitation is the name of the game, conning poor students to come and play for you and then chucking them out when they get injured beyond repair. That's the way of the world – well at least it is in America.

By far the most entertaining part of the game is the pre-match preview and half-time roundup hosted by those two lovable rogues, Nick and Bob. A well animated and detailed synopsis of the state of the teams, and roughly how badly beaten you will be, follows.

Someone certainly went through hoops to write the manual – 56 pages full of diagrams, every menu item explained in the most exact detail and the worst spelling.

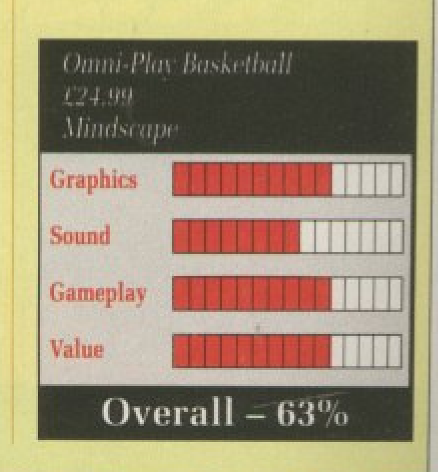
There is an overall polish to the game which is hard not to respect – except, that is, for the game display. The bottom 56 lines are alternately filled with garbage or the top of the referee, waiting to pop up. Obviously on an NTSC screen this doesn't matter, but we are not Airstrip One yet.

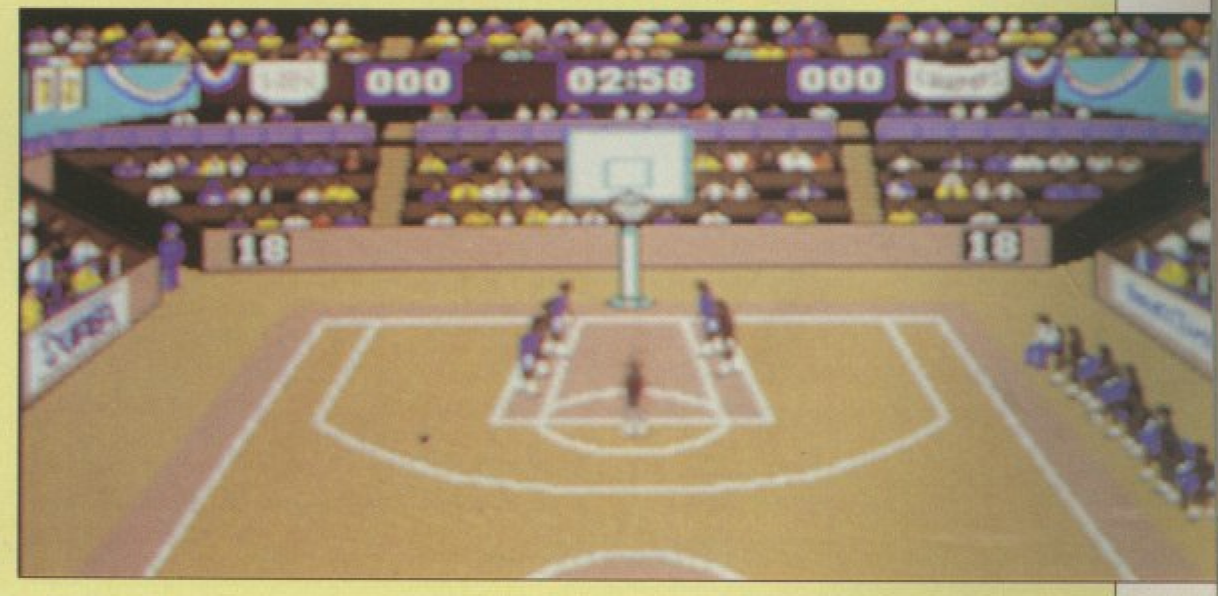
Aside from that, everything is graphically good, though some of the action is a little on the small side.

As a simulation, Basketball falls down on playability. There isn't enough range or depth to the action, the experience being more like watching a game being played rather than competing yourself.

As a management exercise there is a little more s cope for interest, more to watch for and more feeling of actually being on the bench. My impression is that the game has fallen between the two baskets.

Green





Going two for one

ARTHUR – THE QUEST

Joust when you thought it was safe. . .

NO, it's nothing to do with Dudley Moore, this is Arthur as in the ancient Saxon king. No, not Arthur Negus. Look I'll start from the beginning, shall I?

There are many versions of the Arthurian legends, but all of them have one or two things in common – Lancelot, jousting, a round table, Camelot and, of course, a magical sword called Excalibur.

But here the tales begin to differ. For instance, one school of thought talks of the "sword in the stone" being Excalibur, whereas Geoff of Monmouth insists that the magical sword was given to Arthur by the Lady of the Lake at a later date.

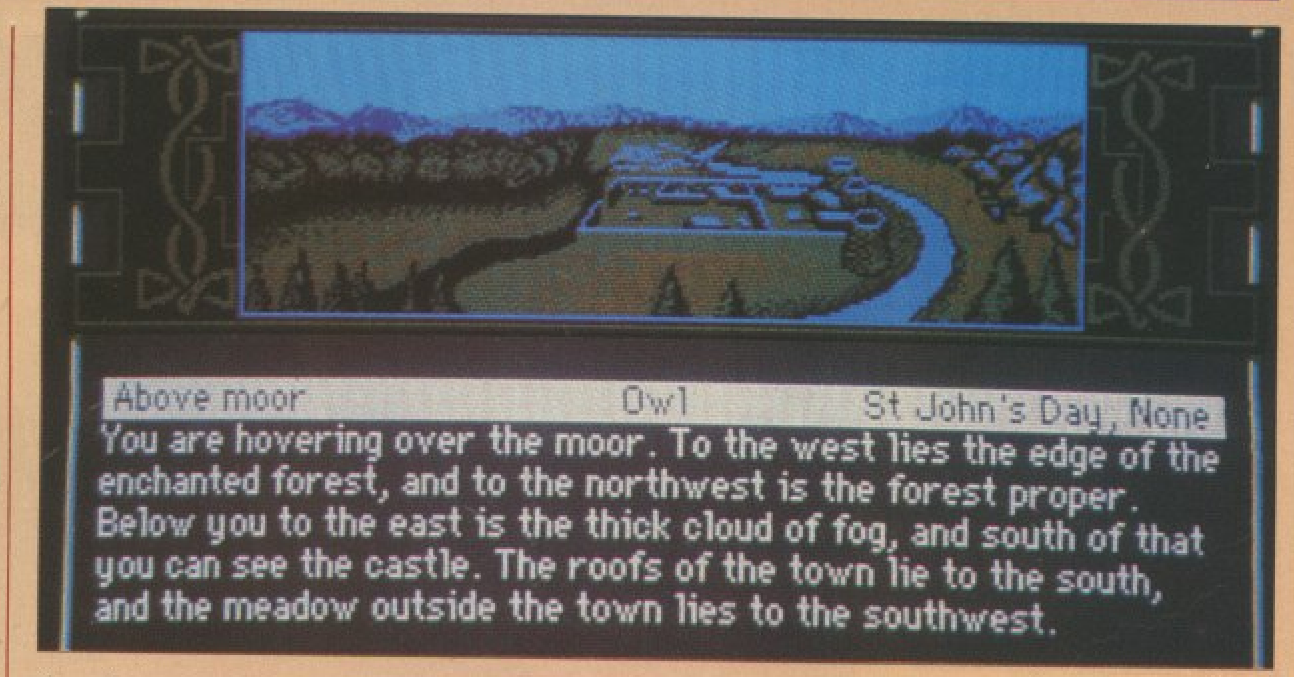
In actual historical fact there was no jousting, Camelot was probably a collection of tents rather than a stone castle, and the table? – yes, it was more probably square.

As for Arthur himself, much mystery and debate surrounds the legend, as it does the life of Christ, and it is contested with an almost religious fervour.

In its version of the legend, Infocom has compromised, weaving most of these stories into the plot. Some of the other mythical figures and places that emerged from this period are drawn into the story.

This is quite pleasing as it gives the player the real feel of this most magical of times without giving the answers away if he or she already knows the mythology. In fact, this adventure concentrates on the period leading up to Arthur becoming king, of which not very much is known, historically or otherwise.

The story opens in the churchyard where the sword in the stone is being kept. The local bad guy, King Lot, is determined that he will be High King of England, so he half-inches the stone and pretends he has pulled the sword out. He plans to be crowned High King on Christmas Day, in 72 hours' time. With the help of Merlin, Arthur must find some way to stop him.



Go north

Unfortunately Merlin reckons that Arthur isn't yet ready to be King. First he must prove that he is wise, brave, chivalrous and experienced enough to be leader of all England. He also must find a way into Lot's castle to find out what the evil person is up to.

Various mini-quests will take Arthur into the surrounding countryside to face magical knights, wild animals, mythical beasts and enchanted forests.

The usual Infocom Help menu is included, probably the best help system in the world. Clues are revealed ranging from the so obscure that the author didn't really know what was going on, to the thunderingly obvious which everyone's pet hamster, or even mother, would twig to.

Some problems are merely a question of having the correct objects or having previously completed some other part of the adventure, others require a great deal of logic and, I venture to say, at least one peek at the hints.

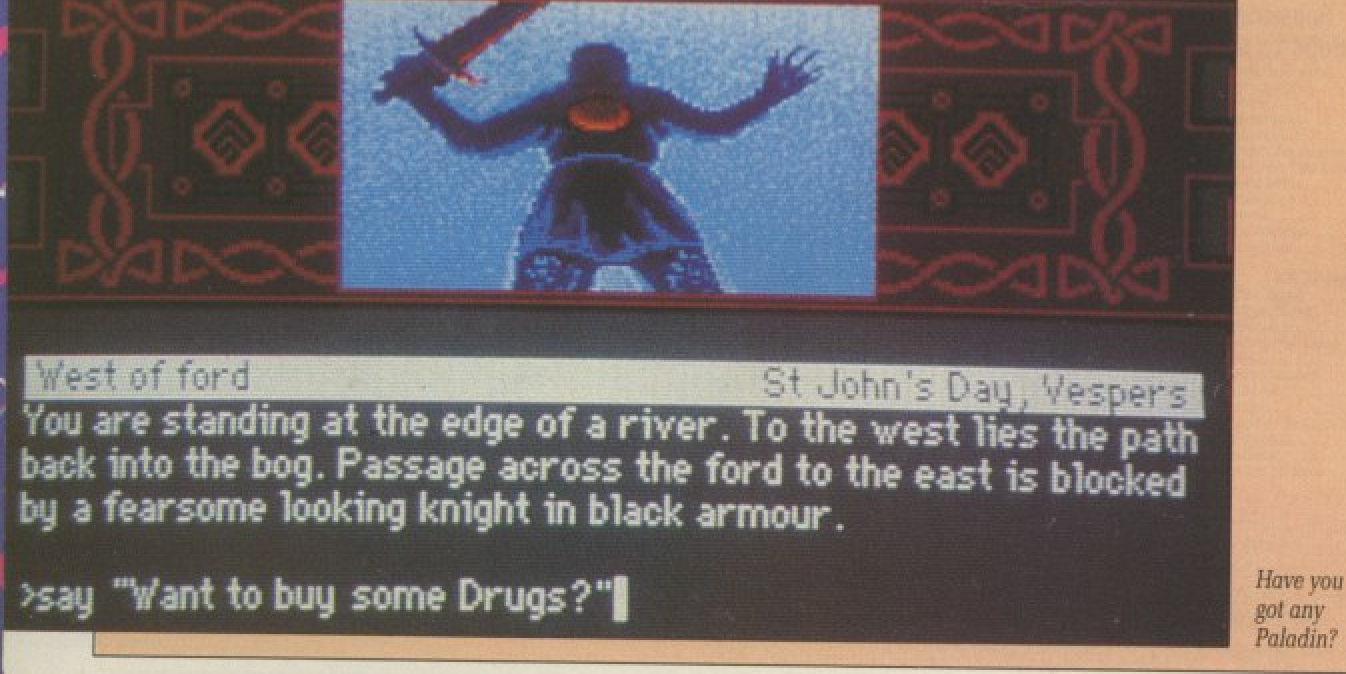
There is a variety of screen modes, incorporating text only, graphics or a rather useful mapping mode which allows you to use the mouse to click on any adjacent location or to choose a direction from the on-screen compass. This is a great aid to rapid travel, especially in later stages where you may find yourself rushing backwards and forwards quite a bit.

Parsing is very good throughout, with the exception of the "say" command, which is a bit strange in its usage. But it's seldom needed, anyway. Graphics are pleasing throughout, although I belong to the school of thought that you only look at the picture once, so it is a bit of a waste of space.

Infocom is quite good about this since there are only three full-frame pictures, the rest being confined to a small, but nevertheless attractive, graphic in the top centre. They do say, after all, that size doesn't matter – it's where you put it that counts.

Arthur, like most games from Infocom, is a highly polished example of the state of the art in adventures. Yet unless one is very careful with the hints, it can be over far too quickly.

Lucinda Orr



Have you got any Paladin?

Arthur – The Quest
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Infocom

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Gameplay	
Value	

Overall – 83%

PALADIN

Once a knight is enough

PAL-ADD-IN? Wassat then? A new board for European screens? Oh, you mean Paladin as in Paladin and the Lamp? No? Hang on, I'll look it up in the dictionary... Ah. Paladin: A knight errant, a paragon of knighthood. Hmmm, doesn't say anything in here about running around killing and maiming and relieving people of their wealth.

As a young hopeful, you are striving to become a fully fledged knight in Arthur's court. In order to prove your worth you must tackle hazardous quests, rescuing damsels – some of whom look more wanton than distressed – and fighting off dragons, all in the interests of self-improvement.

Wouldn't it have been easier to do a course with the OU?

To aid you in your quests you will always have a small band of witless comrades-in-arms, or cannon fodder, depending on how honest you want to be. Their job is to do all the dirty and dangerous work while you reap all the glory. Well, that's what being a knight is all about, isn't it?

However, the first puzzle any aspiring Galahad must solve is how to get the game started. Not as easy as it sounds. First of all, unless you want your gallant hero to be called Brandon, you have to call up the quest designer and create a new Paladin with a decent name like Bonecrusher. Once saved, you must quit back to Workbench and click on Paladin proper.

After battling with the obligatory copy-protection password, nothing happens. Time to look at the manual again. Select New from the first pull-down menu and your quest is begun. Or rather, your quest to begin your quest has begun.

Now do battle with the fearsome requesters, which want to know everything about all the files



Nothing acts faster than Paladin

Paladin seems to need. These requesters lack the simplicity with which they are normally endowed and can become quite a chore, alternating incessantly between using the keyboard and the mouse instead of the option of one or the other.

The quests range in difficulty from Easy (read quite hard) to Very Hard (read impossible) and are designed so your character can gradually improve over each quest until he tries out for his knighthood.

The improvement made each time depends on how active the character has been, so pop out from

A WINTER'S TALE

More like a horror story

GARFIELD, the feline fatso with the sardonic smirk, is dreaming about all the royalties he could get for appearing in a computer game, all the lasange he could buy with the money.

Garfield has a big smile on his wide chops. But wait, a cloud passes over his face. Something is amiss. Deep in dreamworld Garfield has signed up with The Edge, but notices that Tim Langdell, the boss of the company, doesn't smell quite right. A first inkling of the horror to come.

Then Garfield notices that there are holes in Tim's jumper, and that he's wearing a tatty old hat. Odd, but it gets odder when Tim shows Garfield how the game is progressing some months later.

There's a scrolling section, a scene in a chocolate factory and a skating part. But where's the Garfield, the plump one asks, bemused. Right where we want him, snarls Tim, six-inch blades flashing across the office, glinting in the moonlight streaming through the window.

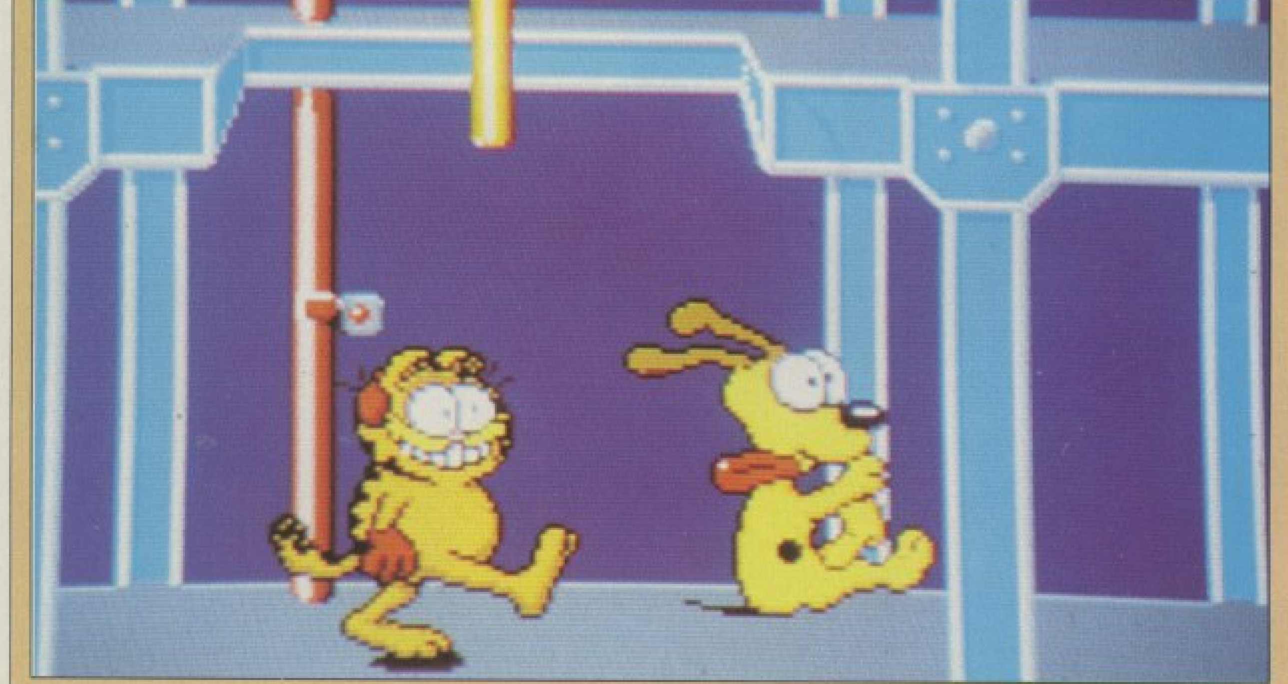
Garfield meows in surprise and finds himself catapulted into the game, becoming the computer version of himself.

Tim has vanished as Garfield peers out from under a blanket. There's the open fridge and part of his home, but he can only see grey nothingness extending beyond the edge of the room. Garfield realises that there is no way out of this screen, unless... unless he plays the game.

But to do that he needs to be asleep. Thinking of oceans of lasagne and planets of chocolate he eventually nods off. Floating above in a dream-thought bubble is the choice of the three adventures, completion of which in the right order leads to the fourth and, just maybe, freedom.

He selects the alpine racer choice and a dream version of himself wanders off the screen in search of escape.

Finding himself on a pair of skis is quite frightening for an overweight cat, especially, as in all



Oddie demonstrates Kickstart version K9



Life's a beach, then you marry one

behind your human shield every now and then and kill a half-dead monster just to keep up appearances.

The quests are entertaining and the graphics are generally good. Some sound effects are relatively pleasant, but being subjected to them constantly would give even the most patient of knights cause to reach for the volume control.

Various aspects of your knighthood are tested – like your ability to bounce swords off your bare chest, laugh in the face of dragon's breath and, most vitally, how fast on your feet you are.

One of the most important things to master is the deployment of your minions and making sure they take out a fair number of baddies before they get it, as they more than likely will.

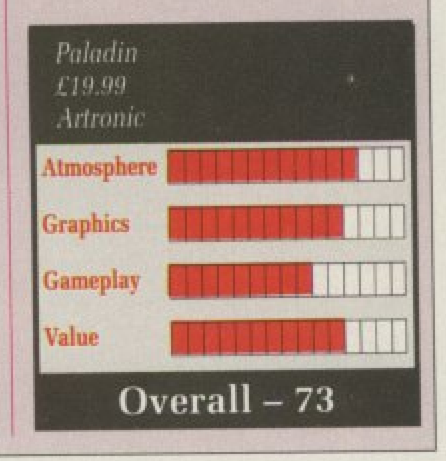
Amulets, potions, weapons and the rest of the department store list of objects which litter dank hovels and enemy castles are present in cornicopial plenty, all waiting to be picked up and horribly visited upon their former owners. Encumberance rules are properly applied to movement.

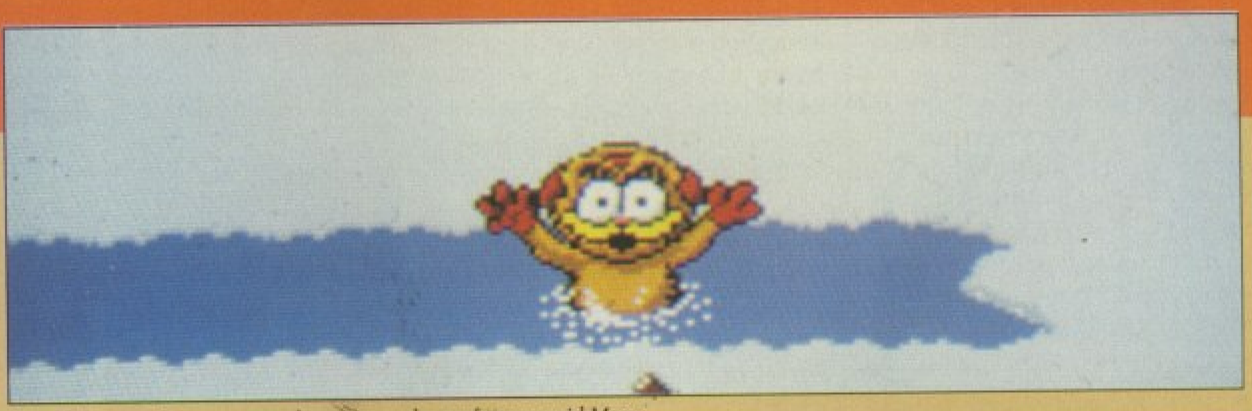
The icon-driven system of man management is unnecessarily complicated by the addition of command combinations, such as Alt plus left mouse button, in order to change a character's direction. Someone should've told Artronic that a mouse was meant to make things *easier.*

The quest builder gives the scope to design new adventures for your friends or alter the present ones to make them easier or harder to your preference. Subsequent data discs are planned which will interface to the present system.

While dispensing with some of the raw randomness of true role-playing, there is more of the feel of actually participating in a proper adventure. So if any man would be a knight and follow a king, follow Paladin.

Lucinda Orr





Yes, Eight out of ten owners who expressed a preference said Meow

dreams, his movement is terribly slow. It's like skiing through treacle.

Logs, trees, bushes, shrubs and other obstructions scroll up all to be avoided. It isn't too easy swerving out of the way, so jumping is the best bet. Going over the ramps with a jump sends him flying through the air, a much quicker and safer way than skiing along the ground.

On the bottom of the dream screen a little vignette of Garfield looks sleepier and sleepier each time he falls foul of an obstruction. To keep his dreamself awake, Garfield must swerve violently towards the edge of the screen with his mouth open in order to intercept the local villagers who stand with plates of cake and food.

Unfortunately no sooner does Garfield see the nosh than the holder of it has scrolled past out of sight. There's nothing for it but to keep jumping. Even if he can't hear the sound of skiing or very little else except for some tuneless dirge in the background.

Eventually Garfield finishes the course and staggers into a lasagne factory. As he sits down to scoff, he knows that he's more like the Martin Bells of the skiing world than the Franz Klammers.

Then Garfield finds himself wandering around a very blandly painted factory, trying to turn valves so that a supply of feed gets through to various chocolate egg-laying chickens.

Up conveyor belts and down poles, up and down in lifts, and more jumping and trying to turn those infernal valves, and then wandering all the way over to the one screen which tells you how many chickens out of four you've fed.

All the while Garfield is getting sleepier, and although there's bits of food around, there isn't enough since a randomly appearing Odie keeps pinching it.

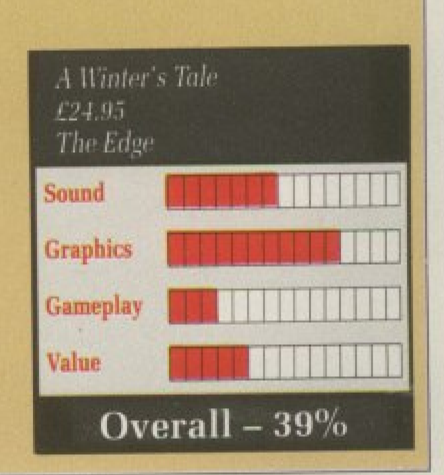
Poor Garfield, even if the lack of food wasn't making him sleepy, the boredom of the factory would. Tim watches on, and cackles manically.

But now he finds himself on ice skates, tearing around a pond littered with snow, tyres, and half of the sprites from the first game. Only he's going too fast and he can't slow down unless... Crunch!

He's stopped now, but as soon as he starts up again in the quest to find the missing chocolate egg-laying chicken, he's racing along. Even the ability to turn 90 degrees instantly doesn't help when you hardly have time to see. Oh no, a dead end... Crunch!

That's it for poor Garfield, his alter ego from dreamland returns to his captive computerised torso and shivers under the blanket. Garfield can only sit and wait, and hope that some talented individual with the patience of Job can finish the game and rescue him from this nightmare that The Edge created.

Duncan Evans



BATTLE VALLEY

Several bridges too far

NUCLEAR missiles are rather annoying; all they ever seem to do is cost a lot of money. I mean, you could use a pair of them as clothes poles, tomato supports or post-modernist garden ornaments.

That's what happened in Battle Valley. The local terrorist commune simply couldn't get their fatigues the kind of greenish khaki that they liked. What they needed was a proper drying facility, and since the nearby nuke base was being dismantled, they borrowed a couple of medium-rangers for the back lawn.

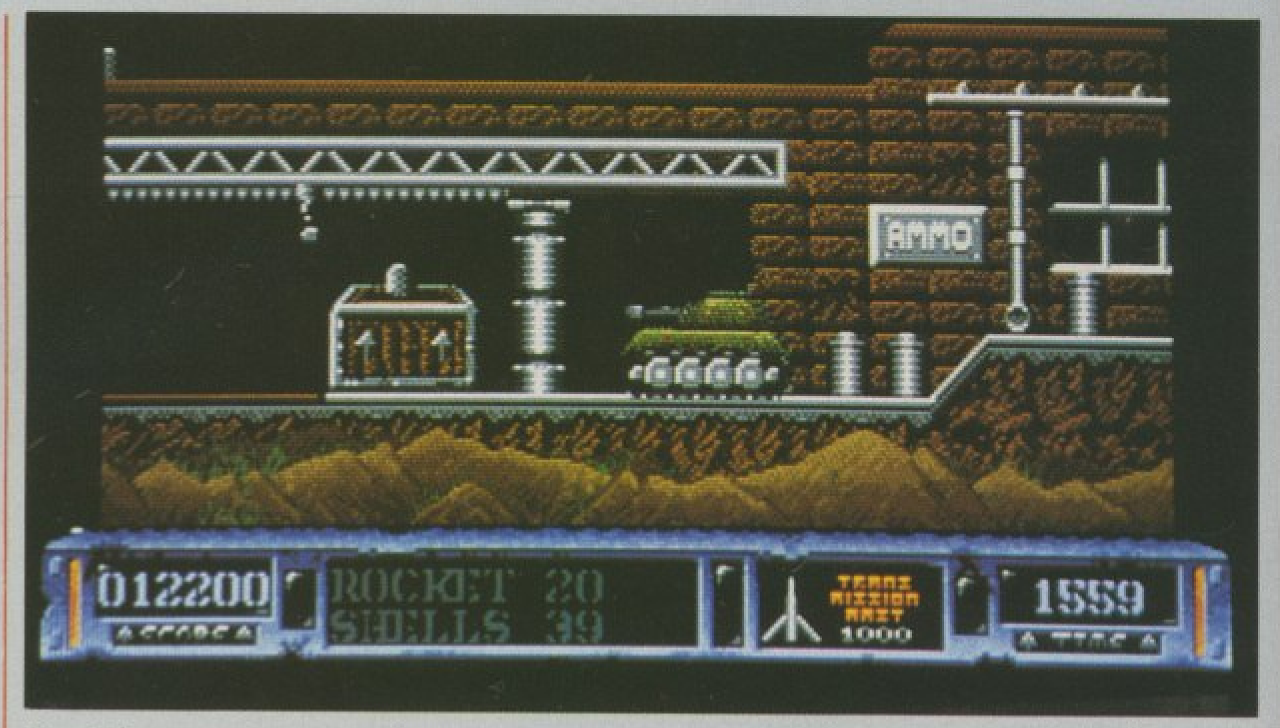
They weren't any use – the rope kept slipping off the nose cones – so they had to find a new use for them. They hit on the ingenious idea of holding the western world to ransom. Since all the other nukes had gone, they had some bargaining power.

This is Not On; apart from the fact that it's not sporting, there'd be zilcho game otherwise. In their usual way, the Pentagon can't handle it, so they call in a mercenary – you.

You've got to destroy all the terrorist bases and get the missiles into as many pieces as a tank shell can render. You've got a helicopter to do the ground work and a tank to do the rest. Slightly unconventional, true, but it seems to work.

So you fly along, taking out anything which could harm the tank, and winching in new bridge sections to allow the tank to cross the rivers.

The chopper's missiles make short work of the gun emplacements and SAM launchers, but have no effect on the outposts.



Down in dumps

That's why you must use the tank. Otherwise it would be a Silkworm clone. Except Silkworm doesn't have a narrowed down screen – Battle Valley does.

It isn't plain sailing in the tank. Some surface installations are too hidden for the helicopter to get so they need a little working over before they see the merit in exploding.

The terrorists have thoughtfully left piles of ammo just where a careful pilot or driver might find them – how fortuitous.

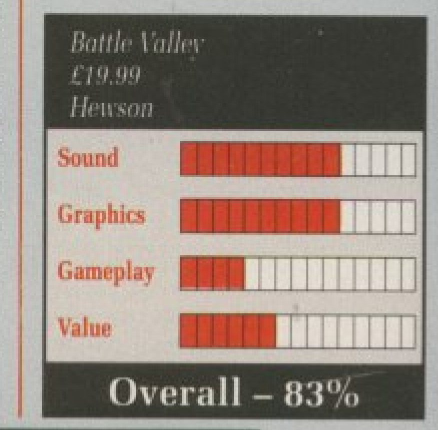
It's not that straightforward, though. You have to use the winch from the helicopter or a complex crane arrangement from the tank. It can prove a little difficult. It's much easier just to crash and restart, with full ammo, but with 500 seconds less.

Battle Valley was originally a budget release on the older machines, and to say that you can tell is a bit cruel. Multi-layer scenery scroll, with very fine detail and good perspective, doesn't come cheap. Nor does well planned and executed sound effects and a bearable tune, even though the latter started life on the C64's SID.

It's just that the the gameplay is missing the elusive spark that is so rare at the £2.99 price point. But if we splash out £20 on a game we want – unless we're on a tax loss binge – a bit of lasting enjoyment, or at least a high that no volume of black coffee could ever produce. Well, maybe not, but hopefully you get the idea.

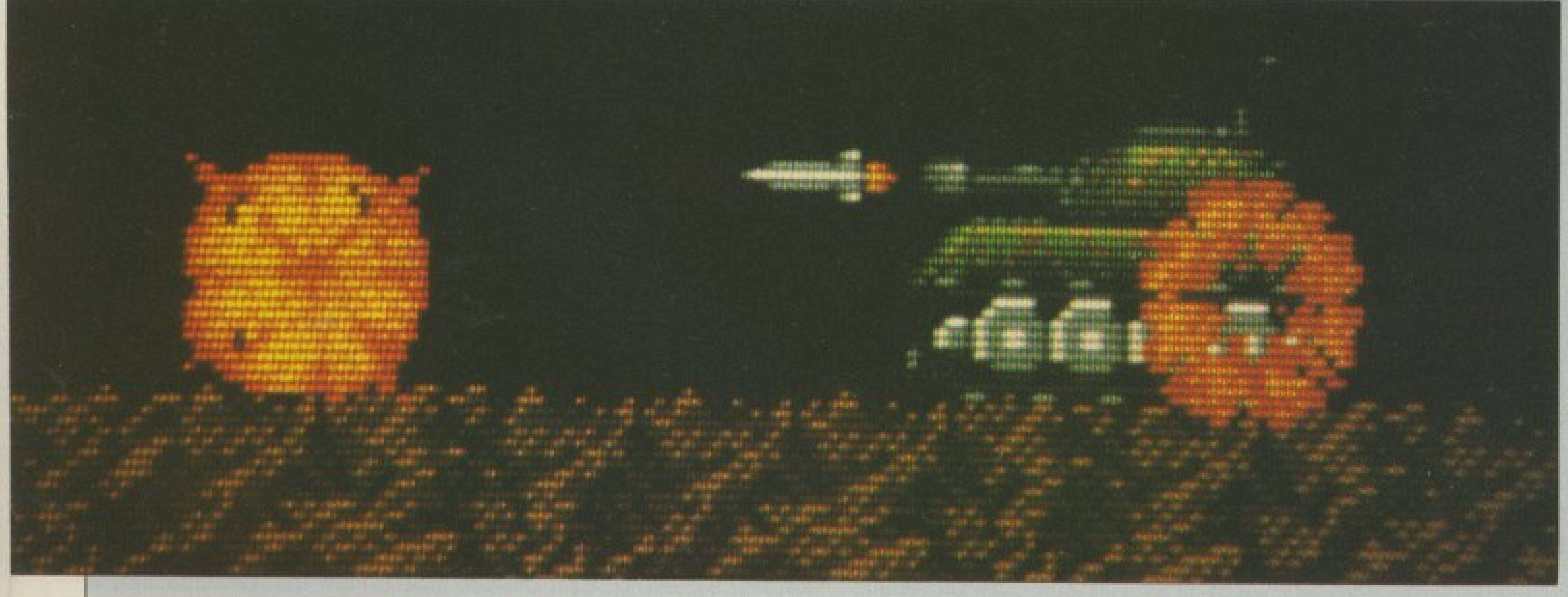
Hewson could have done us all a favour and converted Anarchy its other famous budget game, which didn't have graphics, but did have captivating gameplay. Battle Valley isn't actually bad; it's quite clever inside, but dull on the outside, and consequently unremarkable.

Stewart C. Russell


Battle Valley
£19.99
Hewson

Sound
Graphics
Gameplay
Value

Overall – 83%



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TIME

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DEMON'S WINTER

When hell freezes over



Mother Superior meets an old flame

PEOPLE who like playing Dungeons and Dragons but don't fancy spending their time collecting multi-sided dice generally progress on to computers, which have their own set of dice and are less likely to accidentally misread them at a critical moment – an understandable excuse in the semi-darkened hovels such people tend to frequent.

Software houses, although perhaps a bit slow on the uptake, now knock out D&D type games by the basketfull – they know a good thing when they see one (Oh yeah?) and they also know a good thing when they see a bad one.

Most of these games have a section for character generation followed by the main part of the game, an adventure of some sort, usually some quest randomly punctuated by sending lots of happy-go- lucky monsters which frolic across your path to wherever it is they go when they have been dismembered and trounced upon.

Demon's Winter, unfortunately, is no exception.

To start with, you must create a party with five members. If your name's David Owen you already have one. The party can be made up of any of the usual character classes – paladin, ranger, barbarian, monk, wizard, thief, cleric and so on.

Each character must also choose his race, but unfortunately no indication is made of which race is suited to which type of persona.

Characters may be added to or removed from this list at any time but there must always be five members of the party before you can enter the adventure, even if some of them are dead. Once again, a bit like the SDP.

Death is but a mild inconvenience, a slight malady that can easily be cured for around 90 gold pieces, no questions asked, no money back, no guarantee. Healers skilled in the art of resurrection abound, which is just as well, 'cos the Reaper is outside and he's in his working clothes.

You begin in some ruins. It is a good idea to visit the nearby village and buy some fearsome weapons before you run into anything nasty.

Monks can be quite good at karate, but anyone else without a weapon would best spend their attack period looking for something big and solid to hide behind – like the monk.

Wizards are pretty good guys to get to know, too. They may be rather weak, but even the lowest novice can unleash horribly destructive power with a softly spoken magic spell.

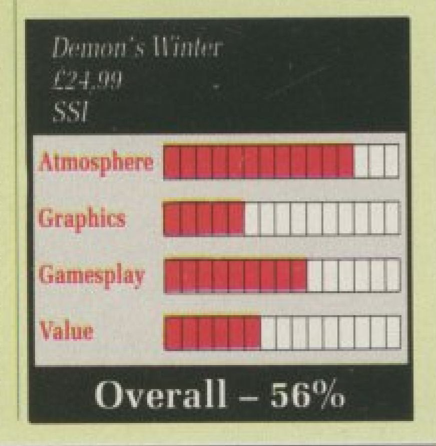
Once suitably equipped you are prepared for, well, exploring and things I suppose, or whatever else it is that archetypal heroes do. When you enter a village a series of gadgets appears with all the possible moves you can make. You can visit the pub, go to church, have a kip in the inn...

Similar gadgets appear when you make camp. You can go hunting, pray, go to sleep, along with a whole host of other options. It is annoying that you have to make camp to examine the characteristics of your characters or to equip them with weapons.

There are objectives, things to obtain, places to explore and a small number of puzzles to solve, but most of your time will be spent beating off random assortments of bad guys who are out to spoil your day.

The fight scenes are the most disappointing part of the game. The graphics could have been done better on a Spectrum, the sound effects are easily surpassed by those of the Oric. Basically you are left with a program that would run more happily on an 8 bit machine.

Lucinda Orr



PROGRAMMERS are inevitably interested in either beer, science fiction, JRRR Tolkein, or all three. This means that if they can't work an alcoholic spaceman into a game, they will turn to the mysterious and occult, as in the case of this latest offering from Tomahawk, the French software house responsible for Emmanuel. French programmers are obviously interested in one more subject.

The use of wizards and magic to form the basis of a plot is not what you might call startlingly original; even the early adventure games on the first mainframes used magic as an major plot device.

It was therefore with totally unbaited breath that I switched off my extra memory and re-booted Legend of Djel to see what sort of magical mystery tour I was letting myself in for.

The booklet accompanying the game is a wonderful example of what 1992 holds in store for us. It attempts to set an atmospheric scene, and fails miserably.

Why do our European friends insist of translating instructions themselves? Would it cost too much to ask someone who had at least glanced at an English-to-French dictionary or listened to BBC World Service to look over the instructions? Here is one of the best lines:

"At the moment of confrontation you will be projected into".

Sounds very painful, and probably illegal.

The story eventually forthcoming from under this Euro-mountain of mismatched prose is the usual soap opera set in a land in the far future.

You play the part of a wizard called Djel – pronounced gel, as in the stuff Green puts on his hair – and your career goals are to rescue a girly, save a country from starvation and cure a major outbreak of foot-and-mage disease.

Every self-respecting wizard keeps abreast of new technology, and Djel is no exception. He has the latest version of Workbench, which is covered in many up-to-the-moment utilities.

Comms are handled by the most modern multi-rate crystal ball, with hardware error correction. The database system is managed by the latest version of dBrain (Dragon's Brain).

LEGEND OF DJEL

Izzy wizzy let's get bizzy



A cauldron in the library? She's cooking the books



Mirror, mirror on the wall

Many more systems tasks are also covered, all accessed by clicking on the easy-to-use rat, er, mouse, using the standard Wimp system – Wizards, Icons, Magic and Potions.

By clicking on the various icons, Djel can check up on his status, or even pop out to a different country. This is achieved by playing with an animated icon on the far wall.

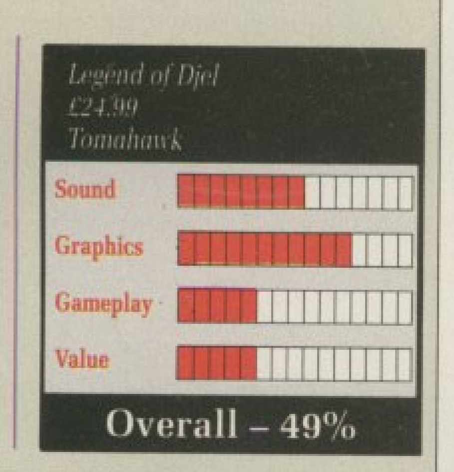
A problem presents itself once each new location has been tiresomely loaded from disc. These problems are usually little more than doing the right thing at the right time, but occasionally you are thrust into combat with a hideous monster from another dimension.

Combat may be of a physical or a mental nature. Being a devout coward, when Djel is under my command he always tries to outthink his opponent. This is attempted on a small grid where Djel and his enemy take it in turns to move a playing piece and place blocking moves. Whoever gets totally blocked first, loses.

The other action sequences are far from state-of-the-art. Although the graphics are occasionally wonderful, their animation isn't. It is therefore best to think of them as little breaks from the puzzling side of the adventure.

This is, of course, where it all falls down, because the adventure side is not particularly mind-shattering. The use of the mouse automatically limits the player's actions, and can lead to the very unscientific approach of clicking everything in sight. To try to solve this problem your total number of clicks is limited. What a cop out.

John Kennedy



Legend of Djel
£24.99
Tomahawk

Sound

Graphics

Gameplay

Value

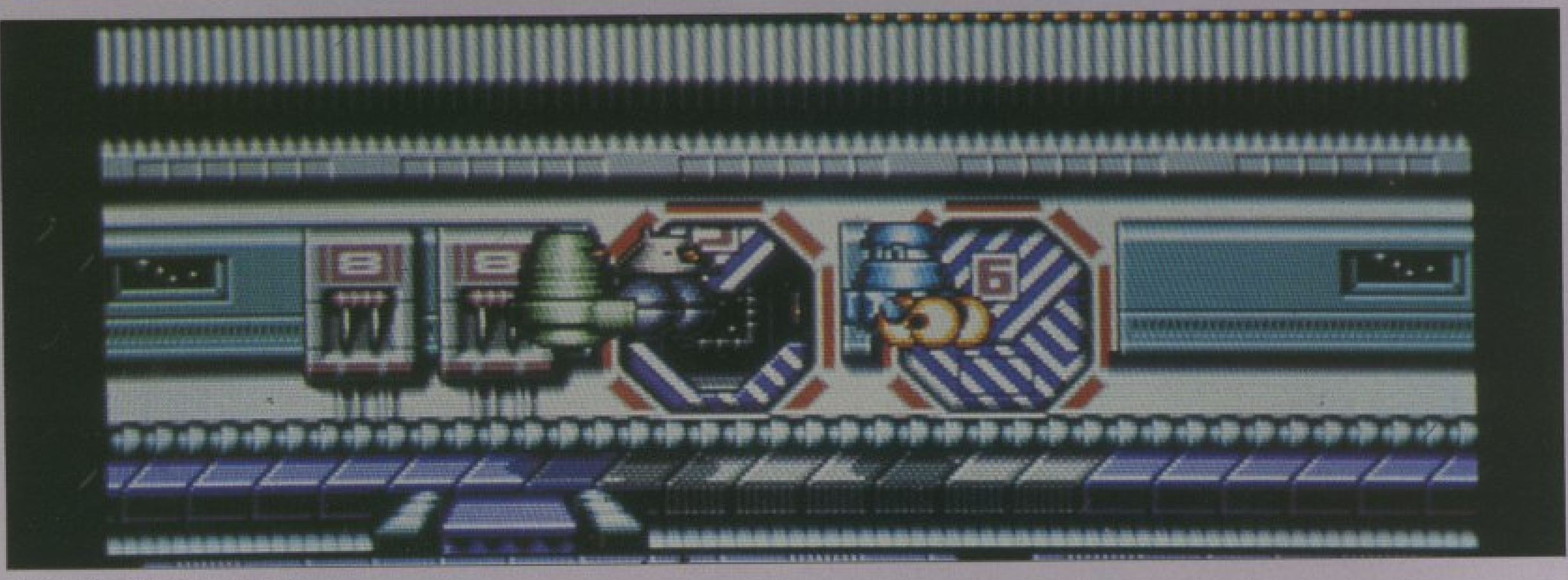
Overall – 49%



And tonight on Blind Date

STEEL

Forging a head



What a depressingly stupid robot

STEEL is a blend of pig iron and carbon which can be manipulated by temperature to give the desired qualities – high carbon content for strength, low content for flexibility. Steel, it also transpires, is a new game from Hewson.

If you were cool and hard without a hole in the middle then you would probably be a steel commando, a man with a mission – sorry, a robot with a mission.

Your task, should you decide to accept it (this review will self destruct in five seconds – or sooner if the editor gets his hands on it) is to board a spaceship whose robotic crew has gone rogue.

Shut down the system by deactivating the terminals (this is highly irregular, Dave) and plugging in some cartridges that you'll find at various points about the ship. Exactly why you should do this is never explained, nor why you in particular should do it. An android's lot is not a happy one.

To deactivate each terminal you must play a sub-game. These are all exactly the same, shooting holes in moving conveyor belts, against the clock. All very reminiscent of an old arcade classic called Phoenix.

These sub-games are not particularly taxing and not fatal if you should manage somehow to lose, they just knock a bit off your energy and let you get on with it.

Aside from insidious sub-games, rogue robots patrol the corridor waiting to deal out summary justice to any infiltrator. These mechanical meanies come in three flavours – big ones that bounce off you, little ones that shoot at you and medium sized ones that shoot at you and *then* bounce off you.

And remember, bouncing sure means trouncing – they'll kick seven shades of alloys out of you if you let them. That's what you get for pretending the danger's not real.

When you're feeling down there are frequent fuel stops where points make energy increases. However, it is rare that the denizens of such areas will leave you in peace for a complete refuel.

Control of your man of steel is very frustrating. OK, he moves up and down corridors pretty well, but just try shooting something. You have to be moving towards them. And why are you trying to shoot them? Yes, it's to stop them from crashing into you. Very clever.

Hazardous assignments are one thing, but trying to complete them with a lumbering hunk of junk is a complete no-brains volunteer job.

If there is one thing that makes a game metamorphise from a challenge into that great spectre of frustration, it is gameplay purposely designed to make the game harder. It is equally an admission of failure on the programmer's part if he can't make the game tough enough without imposing seemingly senseless limitations on the player.

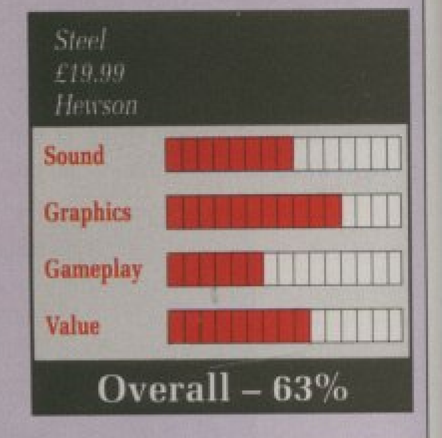
Agreed, it's quite hard, but so is building a Ferrari out of Swiss cheese. And at least you'd get on to Wogan if you did that.

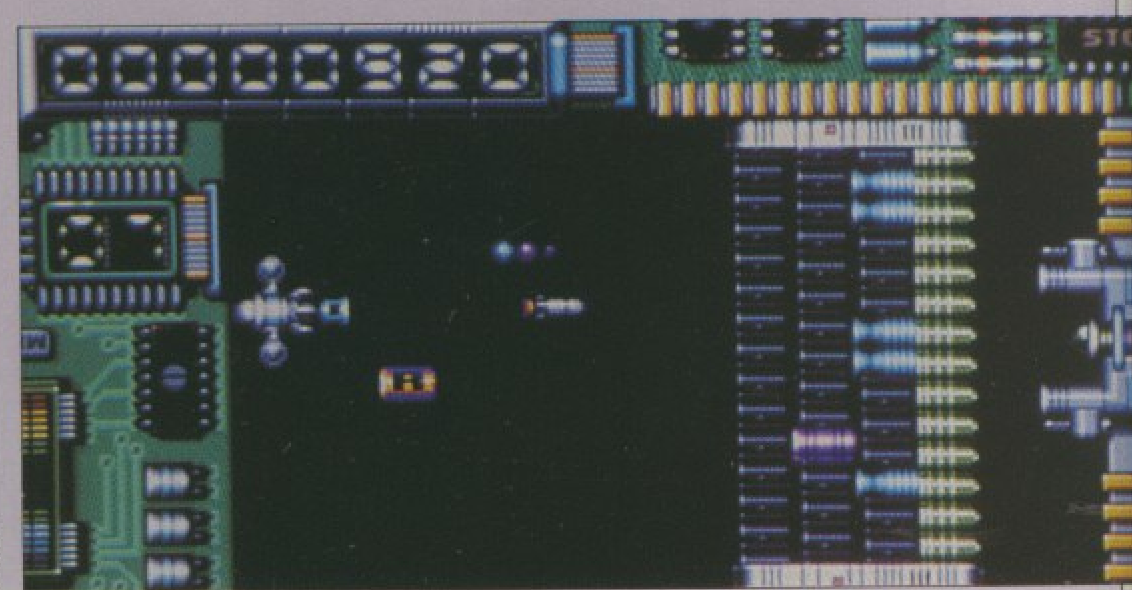
The game is not too bad graphically. Excellence in this department is really the hallmark of Hewson games, and although this one looks a little strained in places, it's still well above average. There isn't much by way of animation, but then there isn't all that much to animate.

The wandering monsters play no real part in the plot, they're just there to get in the way. They're not even consistent, because they don't travel from one screen to the next – they're just random annoyance.

With a plot similar to Paradroid, and from the same software house, you are forgiven for thinking that it may be more than just the same tired old maze stuff – but it's not.

Green





Move along the bus now. Ding ding

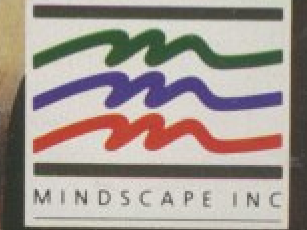
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WATERLOO

Putting in the boot

What is it like to run Waterloo Station? Can your ticket collectors halt the advance of the fare dodgers or will they be able to regroup under the clock? In an exciting new wargame from PSS... What? Nothing to do with trains? Oh, *that* Waterloo.

Ahem. Napoleon was famous not only for his brandy, but also for his Waterloo, of which it has been said that all great men will meet theirs (and not only by Abba).

So it was that on the 18th June 1815, Wellington found himself on top of a hill in central Belgium looking across a very narrow valley at the massed guns and troops of Napoleon's army. An awesome sight, for Napoleon had arranged his larger number of men on the opposite face so as to be clearly visible, thus gaining the maximum psychological advantage.

Wellington faced the most uncertain battle of his career. He could not count on the Prussian reinforcements arriving in time, much of his army was made up of semi-skilled militia forces, and arguably the greatest general of the period had his HQ some two miles south of him.

What would you have done? How would you have fared in one of the greatest battles of all time, where defeat and victory depended as much on reacting quickly to chance and providence as it did to well laid battle plans?

PSS has produced a package which attempts to mimmick faithfully the conditions and atmosphere of that most historic of moments.

You may take charge of either the French or the Allied armies to see if you could have changed history.

What sets this apart from other battle simulations is that there is no godlike overview of the entire field of combat – you can only see from a ground perspective. If you want to make things even more realistic you can choose only to see the field from your HQ, meaning you will have to move around a lot, which is dangerous and time-wasting.

Another way in which Waterloo surpasses other wargames is the intelligence of the company commanders. In the early 19th century, due to lack of efficient communications most company commanders felt free to "interpret" orders from a higher authority in cases when they felt the order was out of date or where they had a special local knowledge not possessed by their general.

This means that Wellington and Napoleon did not directly command their troops, more sort of request them to do something. This can get very frustrating when troops refuse to advance, or worse, go charging unsupported into the enemy strength.

It becomes easy to understand how certain generals were more favoured and given command of larger numbers of troops or more important positions on the field.

Messages, orders and battle reports must all be sent by rider. So by the time information is recieved, if it *is* received, it may well be too late or hopelessly out of date. I once received a battle report from a front-line general more than six hours after I asked him for it.

Clearly a lot of important decisions have to be made intuitively with little or no knowledge of the current situation.

The command parser is fairly intelligent. All the orders are gramatically correct, but it can be a little pernickety about the spelling of obscure village names.

Graphics are OK, but can be painfully slow in places. They are

CONTINENTAL CIRCUS

Let's play at being Nakajima

RUMOUR has it that the Japanese intended to call this game Continental Circuit. But following an ancient oriental tradition, established by mis-naming Monkey Kong as Donkey Kong, Circuit begat Circus.

And given the size of the teams of mechanics, engineers and bimbos who follow Murray Walker from country to country, perhaps the term circus is better suited.

As racing games evolved from Pole Position they earned more car-like characteristics. Visit an arcade to see how realistic they have become – Ferrari F1 style gearboxes, hydraulic seats and machines which make the earth move.

The magic spark plug in CC's engine was a pair of 3D glasses bolted on to the cabinet. While these are available for the Amiga at £80 a pair, not many people will own them. It's a shame, because they are spectacularly effective.

Recreating on-track antics is difficult on a computer, and a number of approaches have been tried. Some games like Grand Prix Circuit and Ferrari Formula 1 aim to be accurate simulators. Some, like Crazy Cars and Outrun, are just a simple blast down the highway. Continental Circus straddles the central reservation between the two.



There is no smoke without fire

The fun is certainly there. Your yellow Lotus squeals away from the grid. The aim is to finish the race further up the rankings. This does not mean winning, just overtaking enough cars. You start in 100th place and have to make it to 80th in the first race.

The circuits mirror the real Grand Prix circus, starting in Brazil visiting Monaco, Germany and most of the major venues. Being a mere island off Europe, Britain doesn't merit an entry, but then the designers would probably have used Silverstone, which doesn't merit an entry.

Each race is started by a bimbo. She is probably a mathematician – with a figure like that she should be. It is the same girl for every race. She must own the card which says 5 seconds.

To get the smoothest start, accelerate while the first (red) light is showing, ease off for the second and then floor it as the green light comes on. A technique you will see practised every Saturday night in Romford.

It can rain. That's the way of the world. While a downpour makes flowers grow and birdies sing, it also makes Pirellis spin. This drastically effects the handling of the car – you have to enter corners wider and slower. In some countries you can take liberties and bump over the curbs. In other places you must stick to the road. If it rains in Monaco you are done

AMIGA COMPUTING

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Waterloo
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Realism	
Strategy	
Gameplay	
Value	

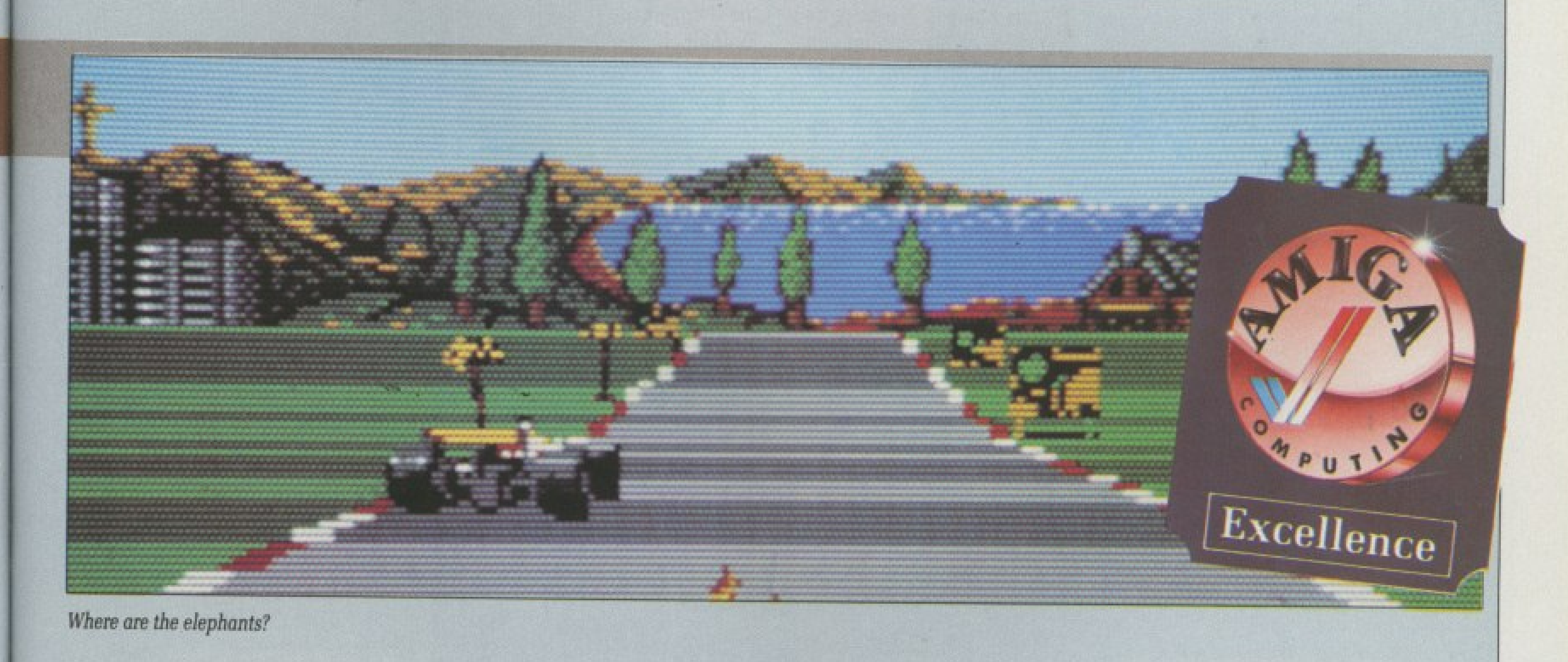
Overall – 89%

Today we send football hooligans

more than adequate to play the game, and a nice touch is the roving mouse, which can identify most buildings and troops. A shame the pointer couldn't have been used for giving movement orders.

If you only ever buy one computer battle sim, make it this one. This is the most complete and realistic wargame I have played.

Lucinda Orr



Where are the elephants?

for. Part of the skill of the game lies in knowing the circuits. In America the first section is very short. You must get there without incident to earn the extra time. You need to make firm decisions. Dither about, unsure as to which side to overtake a slower car, and you'll end up crawling over his gearbox.

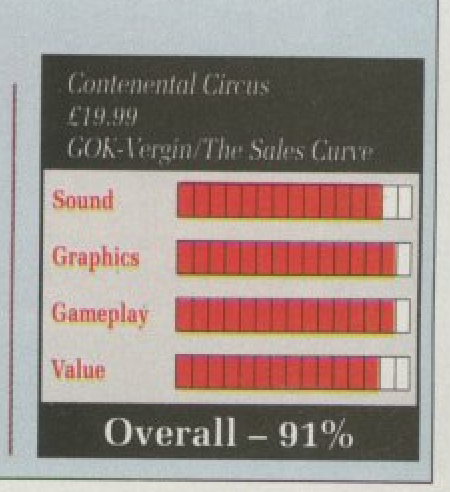
The accidents are fun to watch – an idea which will appal true race fans. Your first bump will set your engine smoking, a short while later it will burst into flames. I had a car like that once. If you don't make it to the pits to get the inferno extinguished the car will blow up.

The pits aren't as detailed as those in the arcade, which is not surprising. The explosions are a good deal more feeble, which is a shame.

The gameplay has been accurately carried across from the arcade, along with the graphics and sound which were ported from the coin-op.

This is the best game Teque has produced. I'm sure this is partly down to The Sales Curve, which managed the project for Virgin. The graphics are great. This is a fine example of how an arcade game should be converted to a home computer.

Simon Rockman



OIL IMPERIUM

It's my baby now, JR

HE walks through the swinging glass doors and smiling at the receptionist, doffs his cowboy hat and neatly throws it to a nearby hook before opening the panelled oak doors to his office.

"G'morning GR, I've got the president on line one for you."

"Put him on hold Marybeth, I have to put out a contract on the head of Rockman Oil and then I'm jettin' out to Oman to show those Johnny- Arabs how a *Texan* puts out a rig fire".

It's just another Monday morning in the life of one of those breed of men whose wealth comes out a hole in the ground, or sometimes the sea bed. He's rich, he's mean, he's got big boots and he's not afraid of stomping all over people with them.

With the moral judgment of a Pershing missile and the playfulness of a rattlesnake, he means business and he *is* mean business. He is an Oil Man.

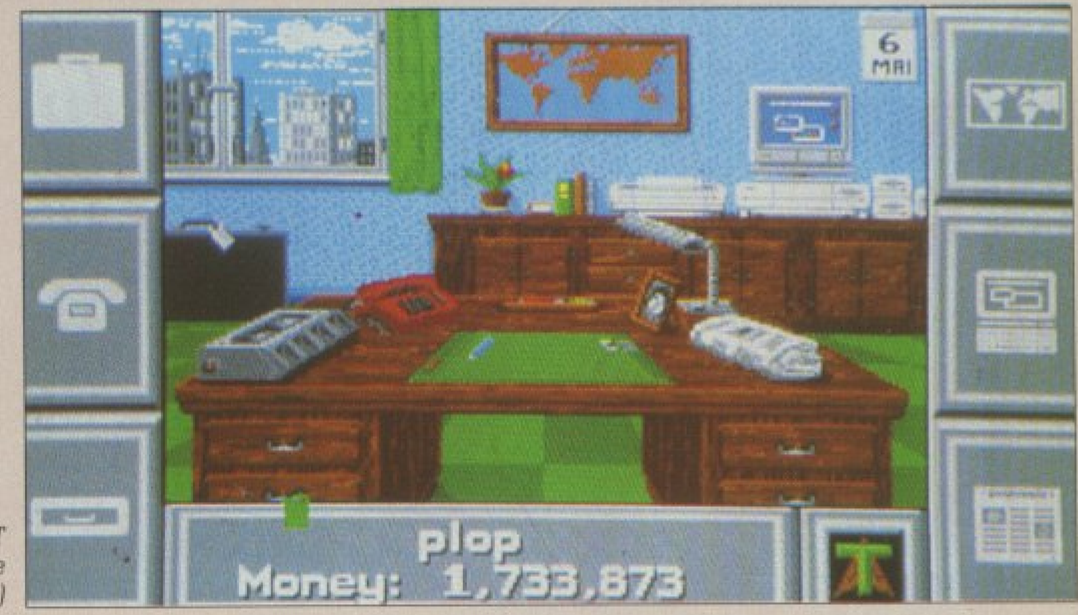
With five million greenbacks at your disposal you take over as MD of a newly formed oil business, hoping to forge a dynasty from Dallas to wherever it was the Colbys came from. And why stop there when there is a whole world to exploit, er, explore? Buy up parts of Europe, Malaysia, the Middle East. Turn Alaska into one giant well, grab that cash with both hands and make a stash.

But be careful. In the oil business everybody is a slippery customer. You may find you're out in the Ukraine putting out malicious fires when you discover someone back east is stealing your money. Get back home and put the screws on before they put you to the wall.

The opening sequence determines your preferences for corporate logos and office furnishing, which provide the backdrops for the rest of the game, so make sure you pick one you like. It is not compulsory to smoke cheroots, but an ashtray is provided anyway.

Activating the computer icon treats you to a very nice simulated Amiga Workbench, where most of your transactions take place. You can buy and sell the world from here, provided you have the necessary. Everything done by modem. Perhaps MicroLink will open an Oilnet gateway soon.

After prospecting around and finding a suitable site for your first black gold mine, you can elect to farm out the actual drilling to subcontractors or get the bit between your teeth, or rather into the ground, yourself. This leads into one of the three arcade sequences in OI, the drilling scene.



Just like the ST User office (Nobody home!)

It looks quite pretty, with lots of stuff going on and numerous gauges telling you everything you wanted to know about drill bits but were too cool to ask.

Actually this is one of the simplest parts of the game. Just keep the drill bit in the middle of the circles displayed top right and everything should come up rosy, or more preferably black, since red oil might be difficult to unload, except maybe to make pink paraffin. And you've saved yourself around $1.5 million into the bargain.

Open your desk drawer and you will find papers enabling you to contract a little subterfuge. Think those guys are getting too big for their cowboy boots over at All American Oil? Go see how they like their storage tanks being blown up!

If your own rigs catch fire you can either jet out there yourself, saving some cash, or give the job to the strangely familiar sounding Ted Redhair. Doing it yourself means parachuting out of an MFI transport plane into the affected area. Obviously more than just a nose for hydrocarbons is required to be a successful oilman.

This second arcade sequence has you running up and down tossing sticks of dynamite down bore holes and running for cover before they blow.

Soap fans will be disappointed to note that the final arcade sequence is nothing to do with kidnapping rivals' children, nor is there any provision for alcoholism or killing your own grandfather to pay back your cousin for running away with your wife. Please, this is a *serious* simulation.

No, you have to connect two sides of the screen by putting together pieces of prefabricated plastic piping.

Occasionally someone will phone up and offer you a contract for supplying a particular region. Long term contracts can be very lucrative and may mean the difference between survival and corporate takeover, but the penalties can be great.

Graphically stunning, this game exhibits a degree of polish which is far beyond that of the average offering, while the gameplay – taking a poor second place – is sufficient to sustain interest at a reasonable qlevel. The only major failing is the time taken between screens and the bad structuring of some of the menus.

ReLine, after their last hit, Hollywood Poker Pro, proves once again that a mixture of good graphics and loose morals can produce a highly playable product.

Green



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reLINE

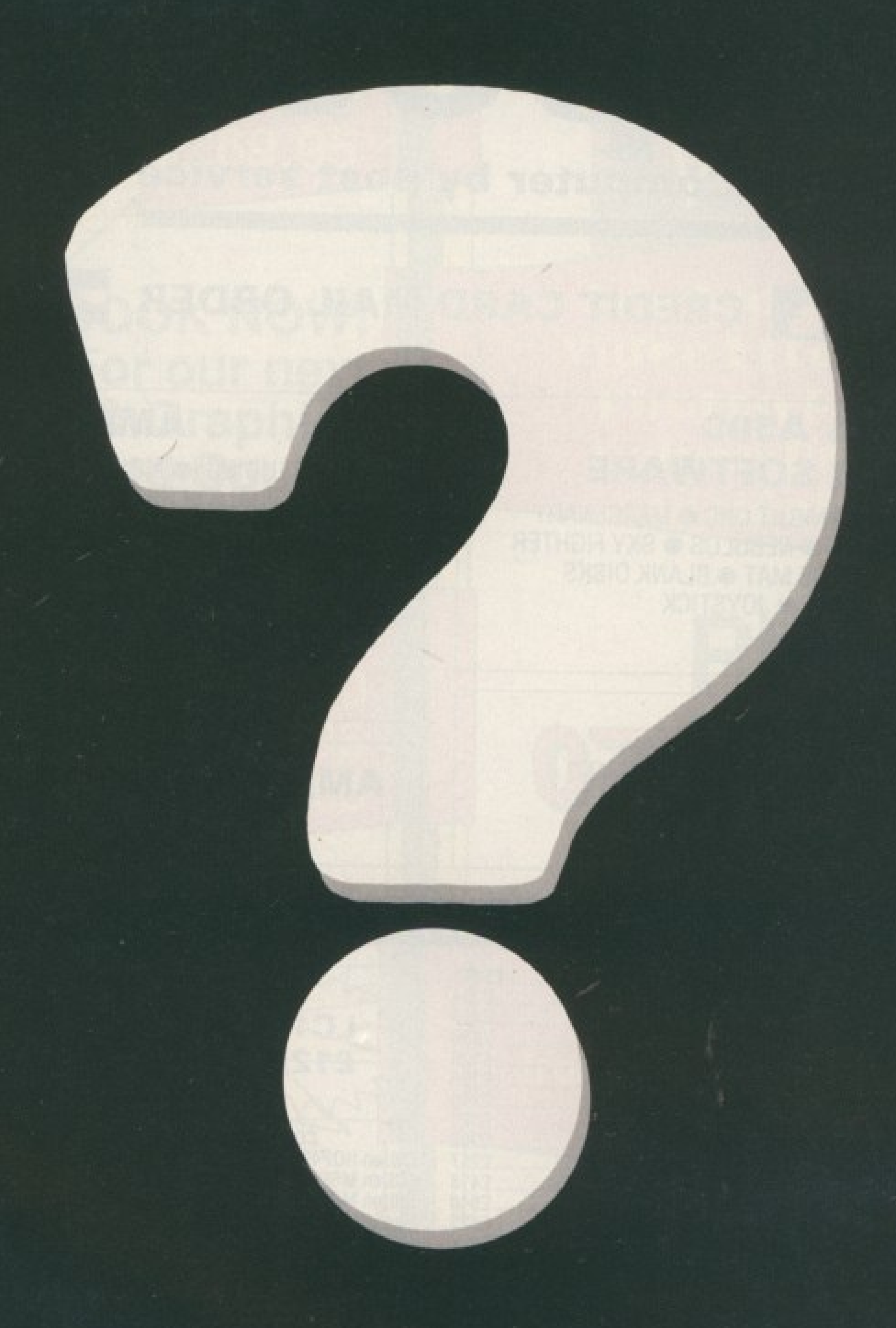
Sound

Graphics

Gameplay

Value

Overall – 82%





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What you'll find on our cover disc

November 1989
AMIGA COMPUTING
A MEGABYTE OF SUPERB SOFTWARE
● Cave Runner: Amazing Boulderdash-like game.
● Track Record: Test your high speed driving.
● Protest: Printer Power.
● Wow!: Like man, erm ... like colours and space.
● Gallery: Tip top art.
● Heavy Demo: 100 fish.
● Atree: Disc utility.
Full instructions are in the November issue of Amiga Computing



Cave Runner

OCCASIONALLY someone writes a truly amazing game. A program which is so fantastic that it sits beside the computer at all times. A game which gets played for years. Tetris, Elite, Manic Miner – mention any of these to a fanatic and watch his eyes glaze over.

Mention Boulderdash to our editor and his fingers twitch with excitement. It's the only game he's got up in the middle of the night to play.

So when a distinctly Bolderdashish game called Cave Runner came in, Simon (the Ed) decided that he ought to test it. Testing took the form of three weeks exhaustive playing. And he still hasn't finished it.

There are 26 screens. You must whizz around each of them collecting the star-shaped jewels. The amount you have left to collect is shown on the top line. Pick up enough and the screen will flash. Head for the nearest yellow exit square to move to the next level before the meanies get you.

Cave Runner is truly addictive. Have you ever played Tetris? This is worse! Your brain goes into autopilot when you stop and you lie in bed awake solving Caves in your head.

There are two types of monsters. Avoid or kill to survive. Purple meanies are stupid. They move in straight lines and are easily avoided. The greenie meanies are smarter. They run around the edges of walls. The best thing to do if you come across a monster is to run away. Very fast.

If you feel brave you can try to kill them. As you dig subterranean tunnels you will happen across rocks and jewels. Drop one of these on a meanie and it will be zapped, turning into nine jewels as a result. On many of the screens this is the only way to collect enough jewels.

The inanimate denizens of the underground are strange. Bubbles float to the top of the screen when released. These kill purple meanies, which die in a shower of jewels, but just get eaten by greenies.

Yellow changers turn rising bubbles into falling rocks, falling rocks into jewels and jewels into rocks. Bombs kill greenies and explode if dropped. This will take out all but the tough walls.

Fungus doesn't appear until well into the game. The blobby coloured globs pulse effectively. They will grow, engulfing and destroying monsters, filling the earth, making a distressing whining noise all the while.

Small areas of trapped fungus turn into jewels, areas over 100 squares which get trapped inside walls turn into rocks, although this is a rare occurrence. And if the fungus grows to 256 squares, it explodes into nothingness. Watch out for falling jewels.

If you get trapped by the funguses, press T to advance the time and end the screen. Press Q if you want to quit. P lets you visit the bathroom – and you thought it stood for Pause.

Amiga Computing is privileged to have such a professional game on the cover disc. It was written in pure machine code by Rudi Martin and Neil Cooper, third year computing students at Glasgow University, with help from Gaz Dickson, who designed a lot of the screens as well as making silly suggestions. Gaz has just finished his second year of an electrical engineering course.

They got their Amigas 11, 8 and 4 months ago. Neil has had a Spectrum and Amstrad 464 before and Rudi a Spectrum for about five years. The Amiga is Gaz's first computer.

Well done lads, we can't wait to see your next offering.

Caves to be careful in

TRUE games players won't read this bit, but some advice on the tougher tasks always goes down well. The second screen, Bang, has all the diamonds you need, but you can score points by dropping jewels on the purple peril.

The first tough cave is Blow Out, screen D. You only have a limited time, which means taking some risks, picking up some jewels while others are falling.

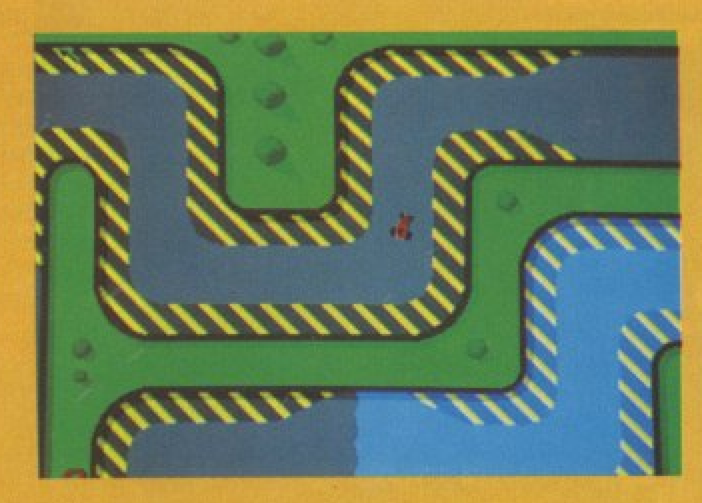
Dig through to the rock above and to the left of the bombs. Clear all three lines of earth from there to the next rock to the left. Then release the bombs.

The bubbles will rise, float into the meanies and shower back as jewels. As soon as you have 99 red baubles, hot-foot it to the exit.

The clue to Enigma is that bombs blast meanies, so you'll have to figure out a way to clear a path to the bombs without getting eaten.

Path of Doom and Spiral are good places to practice precision moves, a skill you'll need for Run Rabbit Run.

Track Record



IF your interests include fast cars, bendy roads and Sweden, then not only are you very strange but you are also in luck because here is a brand new hot-off-the-press PD game dealing with at least two of those subjects.

Starting off somewhere in the north of Sweden, fabled home of Abba and Volvos, and ending up down at the bottom, you can choose to race at any one of 10 tracks.

Using a joystick, move the flag up and down the tracks and press Fire to see that highlighted circuit (it will load from disc). Push the joystick right to the Go position and press Fire to play that track.

Control of the car is by joystick only. Hold Fire and push forward to accelerate, pull back to brake. In order to maintain some sense of adventure here, we'll leave you to work out how to steer left and right by yourselves.

Due to typical intervention by the Norse gods, some of the tracks are icebound, which will seriously effect your traction. Your tyres will no longer grip the tarmac like gunmetal magnets.

Other problems to get to grips with are the usual assortment of bends, sneaky chicanes and the odd spot of astroturf that someone seems to have left lying around.

All races are against the clock, with the best times for each track kept and saved to disc for posterity when you quit. Times are counted in some strange units which defy being related to anything meaningful. This may explain a few things about Sweden.

So if you want fun excitement and really wild things then join the Romanian Cossacks. But if you want to burn rubber, play this.

Track Record was written in Lattice C (v5.02) by Anders Bjerin, who is residing in Richmond at the mo. We wanted to pay him money for the game, but Anders wants it in the public domain. "It hurts to lose the money," he says, "since I would then be able to buy a video digitiser. Maybe I'm crazy."

Your not crazy, Anders, just extremely philanthropic. Can't wait to see v2, by the way.

TRACK RECORD is truly public domain software. No payment is asked or expected in return. You may copy and distribute this program freely, but may not exchange it for money without prior permission from Anders Bjerin, whose copyright the program remains.

The heavy demo



HOLY ZARQUON, the singing fish are in the demo! This month the hard working Jolyon Ralph shows the less enlightened how to use sprites – a whole teaming shoal of the things.

The demo gets its name from the heavy music track written by Steve Hogg. Hook it up to your hi-fi NOW.

The scrolly seems to have been designed to give you retina damage. We assure you that can read it if you concentrate hard enough.

Finally, which of Jolyon's demos would be complete without spurious comments about Poland? You too will be able to make mysterious remarks about Eastern Bloc countries if you follow his tutorials and examine the source code on this disc.

Wow!

LIKE, hey man. If all that arcade stuff is leaving you feeling uncool and heavy, why not let your mind slip into something more mellow and get to grips with the Wow! experience?

Instigating this incredibly awesome sequence of psychedelic delights is surprisingly easy – just click on the most obvious icon. Turn on, tune in, but like hey brother, don't drop out 'cos you'll be needing some vague remnants of intelligence to work the controls.

OK man, take a picture of this: Abandoned room, the lights are down, listnin' to Meddle or maybe Dark Side. Get comfortable, look around, find your own ground.

Now you will have to communicate with the mouse. The really cool cats may be able to use some astral inference or telekinesis here, but for the more green and submarine you can just push it around, however much this may go against your tendencies towards non-aggression.

Feel the vibes permeating your, for want of a more hip term, essence.

Gallery

EVERY now and then, space and quality of material permitting, we will be including some reader submissions of artwork in the Gallery – giving our talented readers a chance to show off to their mates and become incredibly famous. We might even pay you.

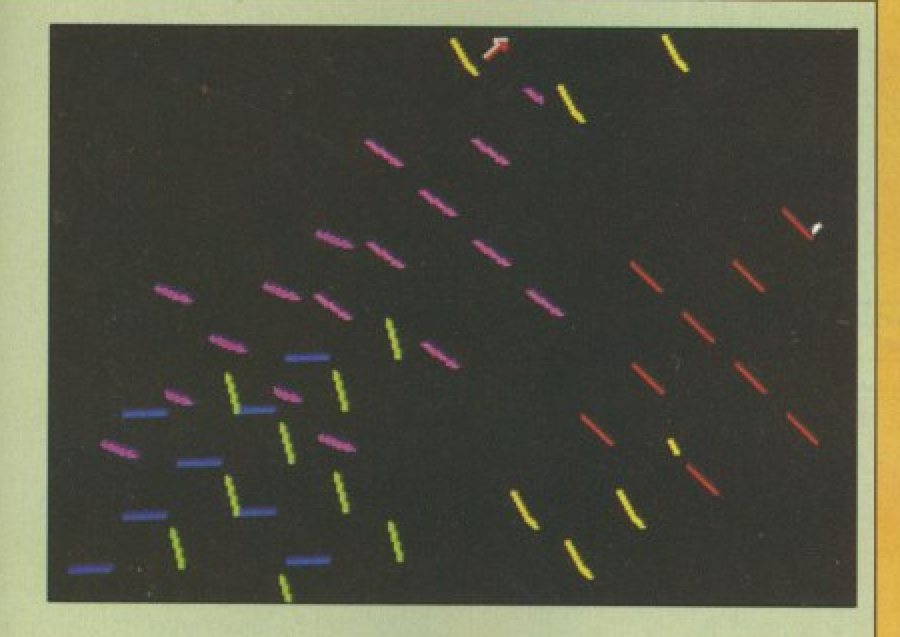
Following this philosophy we have three examples of the standard you will have to achieve.

Messenger of Death is an atmospheric and highly detailed offering from Euan Sey in Bucks. He has an A500 with extra memory, a 1084S monitor and uses Photon Paint and DPaint III for all his artwork. This amazing pic was produced with DPaint in 16 colour medium resolution mode.

Next we come to the excellent Face of 88 from Jason Gee. Jason, who is studying at art college, produced this wonderful portrait to prove that you don't need a digitiser to get a lifelike image. Drawn with DPaint III, interlaced and in 32 shades of grey.

Last up is a submission by Paul Smith of Twickenham, which we have called Shaken and Stirred. Paul is not very forthcoming on how he managed to produce this masterpiece so we can only guess. It is 16 colours, overscan and interlaced.

That's it for this month's gallery. Don't forget if you have some work you'd like to see on our cover disc, use the submissions form and be sure to include details about yourself and the equipment you use.



When you feel the time is right, press the left mouse button. This will unleash a, shall we say, pictorial expression of sound and space stretching into infinity.

Further manipulation of the numbers on the keyboard will allow you to change the basic elements of the screen, while your preference for some sort of environmentally aware pattern can be indicated via the function keys.

Let the music flow through you and through the mouse creating light dreamy sequences, then rapidly change patterns and elements for a crescendo.

For the totally ultimate experience, sell off all your flares to Oxfam and equip your pad with wall-to-wall monitors. Far out.

Oh, and remember – don't put washing up liquid in it.

The dude who created this cognisential interface is one Dug Bartham from Lincoln, who started out on the road to enlightenment with a ZX81 aged 13.

Since then he's aged seven years, moved for a while to a QL, but now uses an expanded A500 which communes with a Centronics GLP printer.

Dug's outlook on life is influenced by Fat Freddy's Cat and the yearning to ride a spadehead. He related his heavy concept to his Amiga with the help of Lattice C (v4.00). This his first ever C program. We dig, Dug. Real cool.

Vote! Vote! V

OK, you've had four cover discs now, and we've had four chances to show you what *we* think you want.

Every month there's a huge box of demos, reader contributions and shareware to sort through. We want to know if we are rejecting the right ones.

Score each category below from 0 (waste of space) to 10 (gimme more). Below each category there is a cover disc example of the sort of program we are talking about. Please don't be a dunce and score the example program, it's your marks for the general category we're interested in.

It's your disc. Tell us what you want on it, and we'll do our very best to oblige.

Category	Score
Article tie-ins *(Eg: Playing with Printers)*	☐
Game pokes *(Eg: Cheats for top games)*	☐
Music to listen to *(Eg: Erm, nothing as yet)*	☐
Playable commercial games demos *(Eg: Chariots of Wrath)*	☐
Full shareware games *(Eg: Track Record)*	☐
Gallery *(Eg: Messenger of Death)*	☐
Hacker demos *(Eg: Zowee, The Heavy Demo)*	☐
Reader submissions *(Eg: Motion Maker, Cave Runner)*	☐
Shareware CLI utilities *(Eg: DiskSalv, Atree)*	☐
Shareware applications *(Eg: IconMaster, PowerPacker)*	☐
Listings from the magazine *(Eg: The Model Universe)*	☐
Usable commercial applications demos *(Eg: Protext, Home Accounts)*	☐

Post your ballot form to: *Cover Disc Survey, Amiga Computing, North House, 78-84 Ongar Road, Brentwood, Essex, CM15 9BG.* To reach us by October 31.

Atree

WHEN you need to copy a lot of files, or even just one, aren't you appalled by the way the task can turn into a nightmare. Wrestling with the vagueries of AmigaDos, even for experienced veterans, can be a major pain. This is just one of the areas where Atree can help.

It is an advanced disc file management system which triumphs over other offerings in this field by its suitability for single and dual drive users as well as those lucky enough to have won hard drive competitions.

It *must* be run from the CLI. If you want you can list current devices as parameters and Atree will automatically take a directory of them. Perhaps something like this:

```
Run Atree DF0: RAM:
```

You can type this into the CLI the cover disc leaves open for you.

If you try to run Atree having booted off any disc other than the cover disc, it will respond with a requester telling you it is unable to find an important file. This is because the file it requires needs to be in the SYS:S directory, in other words the S directory on your boot-up disc.

Also saved in the configuration file are the paths and names for any utilities you might want to use with your files. This means you can combine file reading utilities and the like with Atree, using them without ever leaving the Atree environment.

For example, if you look in the menu Configs:Set Paths under Text Reader you will see that we have entered Qview. Using the hot key F2 you can now read the currently highlighted file.

There are slots for many applications such as IFF display programs and archive utilities.

The configuration file in question is Atree.config, which handles the startup of the program, telling it where various things should go, what colours to use and so on, rather like a mixture of a standard startup-sequence and Preferences.

Details for setting up a config file are explained fully in the documentation, but if you are happy with the way we have set it up then you can just copy the file from the S directory on the cover disc to wherever you need it.

```
Atree v1.3
DIRECTORY: PLAYING-WITH-PRINTERS          FILES
CD004  GALLERY                            PCALC.DOC
         c                                .info
         l                                BOXEX
         devs                             BOX.PPD
         s                                SYMBOL-GRID
         libs                             TINYPRINT-OFF
         PLAYING-                         TINYPRINT-ON
                                          PCALC
                                          PCALC.info
                                          ABC-OFF
                                          READ-THIS-FIRST
                                          BIG-GRID
                                          ABC-ON
                                          READ-THIS-FIRST.info
                                          SIGNATURE
                                          PCALC.DOC.info
File size:1118      Protection: rwed   Date:  Thu Aug 24 17:10:47 1989
Directory:33038     Protection: rwed   Date:  Wed Aug 30 17:20:23 1989
df0:
```

One of the salient features of Atree is a graphical representation of the directory tree, displayed down the left hand side of the screen. Enabling you to view your directory structure at a glance, it will also provide the inexperienced with a valuable insight as to what is really happening on their discs.

Meanwhile, down the right hand side of the screen is a list of the files in the currently highlighted directory. Changing directories is achieved by clicking the pointer under the relevant entry in the graphical tree.

This makes access to low-level directories faster and a lot easier, especially if you are in the habit of naming directories Even_more_stuff _Part_1, or whatever.

One point to note here is that although Atree will recognise these long directory names, they will be truncated to eight characters in the display. Similarly, filenames in the right hand side of the screen will be truncated to 25 characters.

This may seem like a bit of a limitation, but it makes the tree a lot easier to decipher, which is the whole point of the thing.

Taking up at least 100k of memory, Atree may seem a bit of an extravagant waste of ram. But bear in mind the acres of features involved – although some of them are disabled in this demo (you'll get them when and if you register).

Basically you can do almost any kind of file manipulation you want. And since this is the main reason for using the CLI, much of the tedium can be bypassed.

Manipulation of flags and names and all of those sort of things is possible, all commands being performed on a single file, or if you prefer on a whole series of files which you have prepared earlier by "tagging" them.

If you need a management system to find your way around the management system, you can set up to three place markers – very useful for flitting between the squalid depths of directories so deep they were consid-

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ered as the fourth option for the Channel Tunnel.

One of the features to watch out for is Prune, which will cut off the branch of the tree you are sitting on. Make sure you really want to do this. It saves time – you can delete a load of stuff all at once without having to go through and delete all the files in a directory first, but it also leaves you without a safety net.

Atree is a very powerful utility, giving fast and easy access to all your files. Read the instructions on the cover disk and give it a go. It's more than a utility – it's a way of life.

Don't be a software sponger!

THIS version of Atree supercedes version 1.1 and contains a great many of the future enhancements listed at the end of the doc file accompanying that version. However, most of the new routines have been rendered non functional – you will have to become a registered user to get the fully functional version of Atree v1.3.

Atree is freeware at this time. It may be freely distributed, but not sold, by anyone. If you like it, please support the author and become a registered user by sending $20 to: Don Schmidt, 9425 Stanfield Court, Stockton, California 95209.

A fully functional version of Atree v1.3 will be returned to you. Registered users will be entitled to one free version update and to reduced rates on all subsequent versions.

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Don't forget to duplicate on the disc label the program name, your name, address and phone number. If you want your disc back, enclose the correct amount in stamps.

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Address ....
....
....
Daytime phone.. After ....am
Evening phone.. After.......... pm
Submission name ....
Submission size.. bytes in total

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Write a brief description of your submission below. If it consists more than one file, describe what each file is for. Attach an extra sheet of paper to this form if necessary:

....
....
....
....

Sign this declaration:

The stuff on this disc is mine. I didn't nick it off someone else. It hasn't been published before and I haven't submitted it elsewhere because I want *Amiga Computing* to publish it.

Signed..
Date..

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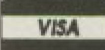




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Little Squirt

Diconix 300 Inkjet Printer doesn't try too hard to make an impression. Stewart C. Russell looks at the strong silent type

INKJETS are the Amigas of the printer world. They're not the most common, nor are they the most powerful, but given the right things to do they're streets ahead of all but the most expensive machines.

Since nothing solid actually hits the paper, inkjet printers are very quiet. They have no pins or ribbon to wear out. All in all, they're a different class of beast from the humble impact dot matrix.

You may not be immediately familiar with the name Diconix, which is part of Kodak – which is better known for paying Jimmy Nail lots of money for adverts. The printer itself uses a trusty Hewlett Packard cartridge system, so the device isn't a bodge job by some fly-by-night manufacturer.

It's a compact unit (356 by 233 by 73 mm) and light at 4.5 kg. About a third of the unit is empty space, since the power supply is external and the inkjet unit doesn't require much in the way of cabling.

The back quarter contains the usual tractor and platen unit, which always looks as if it would jam, but rarely does. As with most newer printers, the fanfold paper can be parked out of the way to allow the use of single sheets.

The fairly-accessible DIP switches allow the printer to think it's an Epson FX 100+ or an IBM graphics printer, running at 960 or 1280 dots per line. The front panel gives you the chance to form feed, forward and reverse linefeed, and change the font.

Five fonts can be selected from the front panel – Quality, NLQ, Draft, Script and Condensed. Quality is better than you'll ever get from a nine pin printer, and on good paper rivals the best 24-pins.

NLQ is very nearly as good as Quality, but is half as fast again. Draft and Condensed are both very speedy, but suffer from being rather dotty. They're legible, and that's what matters. Script is that awful mock handwriting NLQ font that annoying mailshots and people with ageing IBM typewriters use.

As ever, the printer's speed is quoted in cps, a rather misleading figure where paper handling is not taken into account. Diconix quote 258 cps for Pica Draft print; on average (including line and form feeds) I managed 104 characters per second out of it. This is fast considering that it can chunter away at that speed all day.

NLQ gave a healthy 40 characters per second, while Quality managed 27. These are still good, and still way under what Diconix would have you believe. Condensed mode and Script are well nigh the speeds of Draft and NLQ respectively. Paper feeds are especially fast, even in high-res graphics mode.

A bewildering variety of font options can be added to the main

fonts. Elite (12 characters per inch instead of Pica's 10), Doublewidth, Double Height, Italic (in Epson mode), Bold, Doublestrike, Underscore and Overscore are all possible, and can all be mixed.

Unfortunately, the AmigaDos Ansi printer driver doesn't recognise half of these, so they are only available via direct programming of the parallel port, which can be done with some jiggery pokery from AmigaBasic. With a full specification driver, the text output capability could rival a dedicated text formatting system.

CHANGING the ink cartridge is completely straightforward; the unit clips into a small cradle by the platen roller. As far as can be ascertained, the unit contains all the ink jets and some controller circuitry, and looks as if it is disposable.

At £15 to £20 per cartridge, running won't be cheap, even though the cartridges last well. The jets are kept clear by doing a little test squirt on to a blotter at the side of the platen on starting from idle. This ensures that print quality is good no matter what ink density setting is used.

The Diconix 300 is small, light, fairly fast, very quiet – and matches cream Amigas very nicely into the bargain. You can conduct a normal conversation with the machine running, and the unit isn't any noisier on heavy print densities. The fan on some laser printers makes more noise than the Diconix printing at full tilt.

If a new driver was written for it, it would be the perfect choice for Amigans everywhere. As is, only most (not all) of its functions are available to you.

Non-gloss drip

UNTIL recently inkjets only worked satisfactorily on specially coated glossy paper which cost the earth. They leaked, smeared and clogged, and in the earliest days were little more than an airbrush on a plotter base.

Time and technology have changed, mostly due to Hewlett Packard's research and development work in Drop On Demand print mechanisms.

Drop On Demand printers use a tiny electrical signal to fire an ink particle at the page. The jets are fine enough that no ink will leak out unless the jet is activated.

INKJETS are famed for their graphics prowess, and the Diconix 300 is no exception. Unfortunately Preferences EpsonX driver sends the printer soul-searching into self test. EpsonXOld works fine, but as it has a maximum vertical resolution of 72 dpi, and those dots are extremely fine, the output is poor.

The IBM driver (or MPS-1000 as it is called) works when the printer is switched to IBM mode – one of life's pieces of inescapable logic.

Unfortunately, the driver trims the last 20 (or so) pixels off the edge of the screen if the printer is set to 960 dots per line. Normality is regained by switching to 1280 dots per line mode, but then the whole dump is about half the area of a full size image.

Dumps are produced remarkably quickly with good contrast at the lowest resolution. Six passes are made at highest resolution; this gets the paper really wet, and can sometimes get smudged by the bail-bar rollers.

Unless you are doing purely monochrome work, there's very little point in using the higher resolutions – sometimes they come out as a near-uniform shade of black. With Preferences' Smoothing on in high resolution, Notepad output becomes a thing of great beauty.

Unfortunately, using IBM mode has its disadvantages. Some programs, notably X-CAD Designer, bypass Preferences and drive an Epson directly. Epson and IBM commands are usually pretty close, but they do differ wildly where graphics are concerned, so X-CAD doesn't plot properly. The IBM mode cannot handle italicised text; Epson can, but the loss is not major since you could use the Script font instead.

REPORT CARD

DeskTop 300
Diconix
£441.60

EASE OF USE ...
Quick and clean to set up. Very compact, with all controls accessible.

SOFTWARE ....
Good results in IBM mode, although many of its features aren't available from the standard Preferences driver.

SPEED ....
Very fast paper throw gives a good average speed. Pleasantly quiet at any speed. Manufacturer's figures a bit fanciful.

VALUE...............
Very good deals available, but ink costs could be high. Worth the price just for the silence.

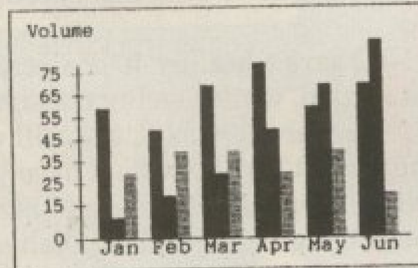
OVERALL 75%

A great printer that Preferences spoils by bad management. Fast graphics dumps, smooth text output and low noise are the main attractions. Cries ou for a custom driver.

The Desktop Ink Jet Printer Features

This fully functional drop-on-demand ink jet printer is the ideal general office machine. Use it to print documents requiring up to 80 columns at 10 characters per inch, such as financial and data processing reports, high quality letters, memoranda, graphs, charts, and any other correspondence. Its compact size and low noise level make it the perfect desktop productivity enhancement tool. Plus many special font choices are available, such as condensed, superscript and subscript, underline, *italics*, **bold**, and proportional spacing. Now consider these other exciting features:

It prints graphics:



- **Print Quality:** Draft, NLQ, and Quality
- **Media:** Cut sheet & fanfold - plain paper
- **Quiet Operation:** 48 decibels
- **Power Consumption:** Less than 16W
- **Compatibility:** Epson and IBM emulation
- **Font Selection:** 100+ font variations
- **Compact Size:** 13.7 inches * 9.2 inches
- **Easy to Use:** Semi-automatic paper loading which allows cut sheet paper to be used without removal of fanfold paper.

The following character set

!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜ¢£¥₧ƒáíóúñÑªº¿⌐¬½¼¡«»
αßΓπΣσµτΦΘΩδ∞φε∩≡±≥≤

is available in each of the following fonts:

Draft ------ 12 characters per inch, 310 per second, and 96 per line
Draft --- 10 characters per inch, 258 per second, and 80 per line
NLQ ------- 12 characters per inch, 73 per second, and 96 per line
NLQ ------- 10 characters per inch, 61 per second, and 80 per line

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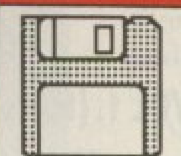
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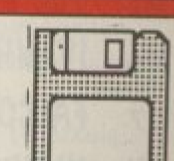
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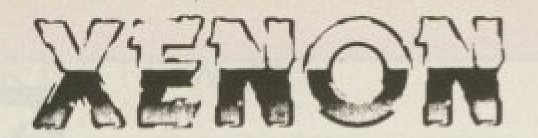


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The action starts here

Machine code maestro Jolyon Ralph shows you how to get it on the screen, and shake it all about

HARDWARE sprites are very similar to bitplanes, the main difference being that they can only be 16 pixels wide and can only use three colours, although you can combine two to make one sprite with up to 15 colours.

You may wonder if there are any possible uses for something that is only 16 pixels wide. Well, there are – plenty. The mouse pointer, for example, is a hardware sprite. Indeed, this month's cover disc demo uses advanced techniques to display more than 100 of them.

You have to do a lot of messing around with pointers and other such things to move a bitplane around the screen. With sprites it's much easier – at its simplest you put the horizontal position in one memory location, the vertical byte in another and, Hey Presto, your sprite has moved to another part of the screen.

Now for the meaty bit. How do sprites work, and how are they used?

The Amiga has eight hardware sprites, used by accessing registers. The hardware has to be told the horizontal position of the sprite and the actual data to be displayed. It has to be told this for each and every line of your display that the sprite is on.

How can you tell the hardware what it needs to know for each scanline?

One way is to set up an enormous copper list with lots of data, like Figure I. However, as you may have guessed, there is a much easier way to display sprites. What you do is set up a direct memory access (DMA) channel for them.

Anything that is moved to and from memory and external devices, or both – such as the screen, disc drive, audio ports and so on – can be transferred by one of two methods. The first is to use the 68000 – by reading a word from memory and sending it to an audio port, for example. The second method is by using the co-processors, which is invariably the fastest way and frees the 68000 to do more interesting things than moving data around.

SETTING up a DMA channel is simple. You tell it where your data is, what you want to do with it – which in our case is to display a sprite – when to stop, and Bob's your unicorn. Your sprite appears as if by magic.

The Amiga has eight dedicated sprite DMA channels, one for each hardware sprite. However, if you are

```
WAIT for the beginning of line X.
MOVE the horizontal sprite position
(only needs to be done once).
MOVE the data for sprite image.
WAIT for the beginning of line X+1.
MOVE the data for sprite image.
WAIT for the beginning of line X+2.
MOVE and so on...
```

Figure I: The data list for a simple hardware sprite

using an overscan screen – one with a width greater than 320 in lo-res or 640 in hi-res – the co-processors have to get the extra time needed to display more of the screen from somewhere, so you lose the last four sprites.

Each pixel in the sprite can be one of three colours, or transparent so it shows the bitplane, or other sprites, underneath. So, each pixel needs two bits of colour information.

And because a sprite is 16 pixels across, 32 bits of colour information – or two words in programmers' lingo – need to be read from memory each scanline.

The colour of each pixel is calculated by taking the corresponding bits from each word. Look at Figure II to see the address of ▶



There's so much you can do...

the colour registers that correspond to the bit patterns in the sprite data for each of the eight sprites, numbered 0 to 7.

Sprites are grouped into pairs for the colour allocation, so you can have four different colour combinations.

The sprites take their colours from the standard palette, using colour numbers in the range 17 to 31, which means they can have independent colours from the rest of the screen only if a screen of four or less bitplanes is used. Colours 16, 20, 24 and 28 are not used because these are the ones which correspond to the transparent elements in the sprite.

COLOUR REGISTERS (+$dff000)					
Bit from word two	Bit from word one	Sprites 0 and 1 # addr	Sprites 2 and 3 # addr	Sprites 4 and 5 # addr	Sprites 6 and 7 # addr
0	0	<----------	TRANSPARENT	---------->	
0	1	17 $1a2	21 $1aa	25 $1b2	29 $1ba
1	0	18 $1a4	22 $1ac	26 $1b4	30 $1bc
1	1	19 $1a6	23 $1ae	27 $1b6	31 $1be
# = colour number, addr = offset to add to $dff000					

Figure II: The colour registers that correspond to the bit patterns in the sprite data for each of the sprites 0 to 7

Now that you know how the sprite colour data works you can convert your graphics to the correct format for use with it. The easiest way to do this is to use the IFF Converter program supplied on last month's cover disc. Load in the IFF picture containing the sprite you want to create – make sure, for the moment, that you only have a two bitplane (four colour) picture – and choose the Save Sprite option.

You can save the sprite either as a binary file, which you can include in your program with the INCBIN statement, or as a source file, which can be incorporated into your source code.

Note that the source code which IFF Converter generates is meant for the K-Seka assembler. To modify it to work with HiSoft Devpac you will need to add a space before each DC.W instruction. Do a global search and replace for "DC.W" with " DC.W".

OK. Back to actually setting up the DMA channel. You have to create a data list somewhere in chip memory and point the sprite DMA register to its start address. We'll come to that in a minute, but first a word about the data list, which consists of two control words followed by the sprite data. The format of the control words is shown in Figure III.

H0 to H8 is the horizontal position of the sprite, F0 to F8 is the first scanline that the sprite is to be displayed on (the vertical start) and N0 to N8 is the scanline after the last line of the sprite is displayed (the vertical end + 1). Note that each of these values is nine bits long. This is a messy number of bits to work with.

Very often programmers ignore the three end bits in control word two. This has the advantage of ease of use – you only have to change one byte for horizontal or vertical positions – but has the disadvantage of only having a two-pixel accuracy for horizontal positioning.

For fast moving sprites this is not a problem. You only need to set bits F8 and N8 if your sprite is displayed in the PAL area – the bottom 56 scanlines that are never used in ST-ported games.

Bit 7 in control word 2 is the special attachment bit. This can combine two sprites together to form a single 15 colour sprite.

Now for an example of how to set up a rough sprite in the middle of the screen. First, calculate your graphics data. We will use a simple spaceship sprite, three lines deep. Our spaceship will have the following data, where 1, 2 and 3 are different colours:

```
0001111111111000
0112323232323110
0001111111111000
```

This needs to be converted into proper sprite data. In practice you'd rarely do it by hand. You would draw your sprite using DPaint or the like, save it as a screen, load that into IFF Converter, choose Save Sprite from the Project menu and cut the sprite out.

Pretend we've done all that and the sprite data comes out like this:

```
0001111111111000,0000000000000000
0110101010101110,0001111111111000
0001111111111000,0000000000000000
```

Next we calculate the control words. Let's say the sprite's vertical start will be at $90. This is the scanline number – the same number you would put in a copper list WAIT instruction.

Our sprite is three lines deep, so the

CONTROL WORD 1

Bit	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
	F7	F6	F5	F4	F3	F2	F1	F0	H8	H7	H6	H5	H4	H3	H2	H1

CONTROL WORD 2

Bit	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
	N7	N6	N5	N4	N3	N2	N1	N0	SA	00	00	00	00	F8	N8	H0

Figure III: The control words format for the sprite DMA channel

vertical end value will be one line lower than that, at $93. We will not bother with one-pixel accuracy, and we are not using the PAL area, so we will choose a horizontal start value for H1 to H8 of $5b, a position roughly in the centre of the screen. (Note that this will be half the value for the equivalent full horizontal start value because we are ignoring bit 0 and starting with bit 1.)

This gives a control word 1 of $905b and a control word 2 of $9300 – 93 because that is the end value and 00 because the last byte in control word 2 is only used in special circumstances, which we'll cover in a future article.

We then create a data list, like that in Figure IV, containing this data. Remember to allocate this to chip memory with a SECTION xxx,DATA_C command:

The sprite list must have two zeros on the end otherwise the DMA channel thinks you are setting up another sprite for it to display. You can display as many sprites as you want with one DMA channel as long as there is a gap of one scanline between each of them. This gap is the scanline where the control words are read in by the DMA, so no graphics data can be read that line.

```
dc.w $905b,$9300 ; control words
dc.w %0001111111111000,%0000000000000000
dc.w %0110101010101110,%0001111111111000
dc.w %0001111111111000,%0000000000000000
dc.w 0,0 ; end
```

Figure IV: The data list for a simple hardware sprite

When you have your data list you must put its address into the equivalent sprite DMA pointer, which is a hardware register. As the address for your sprite data is a 32 bit value it will be have to be split into two words for the registers to be set from the copper list, which have to be updated every vertical blank period – every 1/50th of a second on a PAL machine.

These sprite DMA pointers start at $dff120. The register is named SPR0PT and is split into SPR0PTH ($120) and SPR0PTL ($122). Set up your copper list to put your data list address into these registers at the beginning of every frame, and your sprite will then appear.

Moving the sprite is easy, you only have to change the control word. All the weird objects moving horizontally on this month's cover disc demo are moved by adding or subtracting a value from the second byte of the first control word. This is all that is needed if the first bit of the horizontal position register is ignored.

Moving vertically is slightly more involved because you must change both the vertical start and the vertical end position.

Now you've set up one sprite, try your hand at setting up all eight and and moving them around the screen in different directions. No listing this month, this is your first solo flight. Any probs, write to me care of the Editor.

● NEXT MONTH: Collision detection.

A knight's tour

The first human versus computer chess match was a disaster. The computer got frustrated working out each move on paper, the human got bored waiting up to half an hour for each move. Things have improved since then, as Alastair Scott finds out



BEFORE I start, word about gradings. Under the Elo system, a player who has played sufficient competitive games is given a number, known as a grade, which is a reasonably accurate description of his playing strength. Elo grades range from 700 for the beginner to 2,800 for a world champion.

The average of all graded players, who make up about two per cent of all chess enthusiasts, is about 1,500. A good club player will normally be graded 1,850 to 1,900.

The big three Amiga chess programs are Logotron's Sargon III Chess, Colossus Chess X from CDS and Chessmaster 2000 by The Software Toolworks.

SARGON III is a small program, only taking up 105k. Even better, it runs from Workbench and can multi-task. On a 512k Amiga you can have three games of chess running at the same time. And it has an impressive pedigree, having been written by Dan and Kathe Spracklen, the people who wrote the software for the first commercially available chess computer back in 1977.

Because of its size, Sargon is definitely no-frills. There is no 3D board, but a very clear 2D one makes up for this, with colours set by Preferences.

Presentation is excellent. Full use is made of pull-down menus and requesters. The pieces move quickly and smoothly, rotation of the board through 180 degrees being almost instant. Moves can be spoken as they are played, and the voice used is more pleasant than most Amiga speech.

The game has nine playing levels, with only the lowest three – 5 seconds, 15 seconds and 30 seconds per move – giving a reasonable length of game, as these times are very approximate. One time it took almost two minutes to make a move on the lowest level.

A 68,000 move opening book has plenty of variety and some dubious lines. The full board editor is the best I've seen on the Amiga, and there is an "infinite" playing level which, in principle, allows mates of any length to be solved, given enough time and patience.

No printer facilities are provided but games can be saved and loaded via either a dialogue box from within the program or an icon on the Workbench screen. The moves can also be saved as an Ascii file, ready to be loaded into a word processor.

There are 107 "great games" and various other positions ready to be loaded in and replayed, although the comments in the manual about them are very terse given that Sargon III is targeted at beginners.

A very elegant program which packs a lot into a small space.

COLOSSUS X is an upgrade from the 8 bit Colossus IV, written by Martin Bryant, an expert with 12 years' experience of computer chess programming.

No multitasking, but four sets of chessmen (standard, oriental, futuristic, mediaeval), a good 3D board which can be tilted and rotated, and a very poor 2D board which is small and over elaborate compared to the clear black and white board in Colossus Chess VI.

Sprite movement is jerky. There is a bug in which part of the display is obliterated when a piece moves along the eighth rank. Non-Intuition and suspiciously Gem-like menus are used, with hot-key shortcuts. Silence, beeps, voices or continuous music can accompany your moves, and the program can speak in five languages, with all text altered to suit.

An infinite number of playing levels are available with six different time controls, including "all moves in x minutes" and "y moves in z hours", all chosen from foolproof menus. A full board editor, albeit with clumsy control, is provided. Mates in five, as well as selfmates and helpmates, can be solved.

There is an 11,000 move opening book. The program, more often than not, plays unusual and dubious defences. The book can be altered via a crude text editor – certainly not recommended because the master disc is altered and a crash while accessing the disc may corrupt it. This happened to me. CDS replaced my disc.

If you play an opening which is not in the book your next few moves will be saved to disc for future reference.



Colossus X's 3D board can be rotated or tilted to view from many angles

This slows the program down to a snail's pace, and again there is a danger of crashes.

Endgame play is very good, but that opening book needs revision to eliminate some of the bad lines.

Games can be saved and loaded. The disc directory is not displayed on screen, so if you forget a filename you'll have to fish out your CLI disc to read it. There are 29 human v computer games and 10 problems on the disc. Moves and the board position can be printed.

All sorts of extra weird and wonderful options round the program off, including Blindfold Chess, where you hide one or both sets of pieces, and Play to Lose, an easy mode for beginners.

Colossus X is a reasonable program which could have been much better. The graphics are so-so and the program is strangely sluggish, taking a few seconds even to clear the screen and set up the starting position. It gives the impression of being a badly ported ST program. Gimmicks like the fancy chess pieces and continuous music would be better removed.

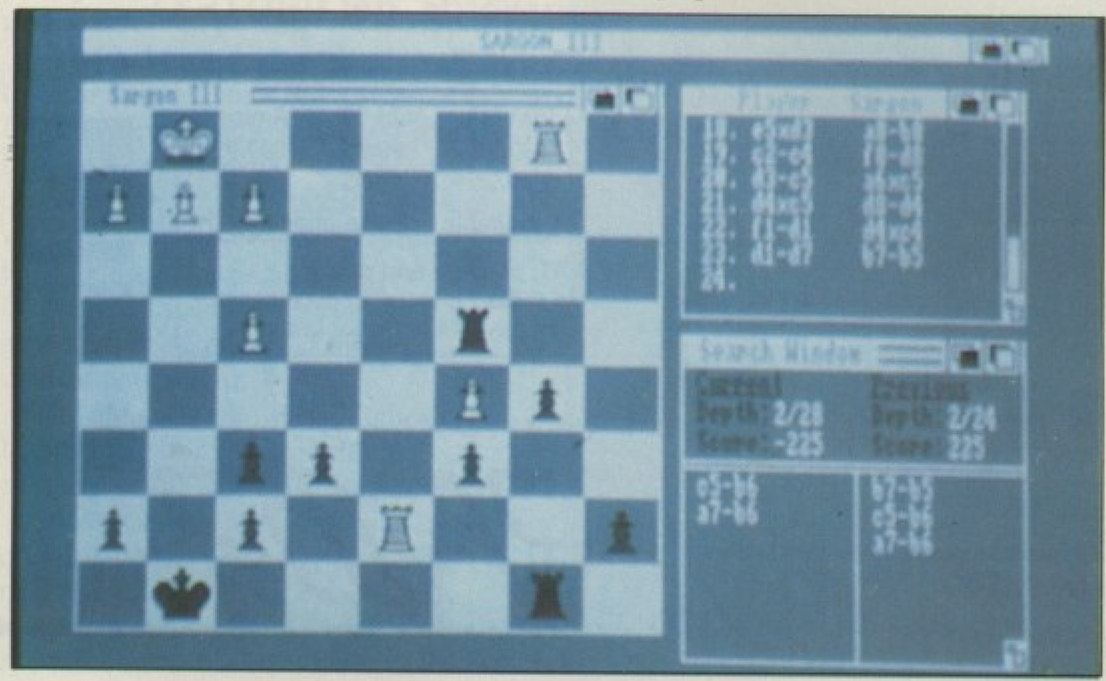
CHESSMASTER 2000 is the best presented chess program I've seen on the Amiga, with large, clear 2D and 3D boards, full use of Intuition, hot-key shortcuts, smooth sprite movement and silence, speech, beeps or bursts of music to accompany your moves.

Unlike Colossus X, which uses a separate screen to display the list of moves and its train of thought, Chessmaster 2000 uses small windows which overlay the main board and which can be closed in the normal manner. Open several of these windows at once on a vanilla A500 and you may get to meet the guru.

There are 12 playing levels, all of the form "x moves in y minutes", and a full board editor – up to mates in 10 can be solved. There is a 20,000 move opening book. One interesting feature is that there is a Coffeehouse mode, for interesting but possibly unsound play.

Best Move suffers from a lack of randomisation – once Chessmaster 2000 and my FDE chess computer played two identical 60 move games in a row, the probability of this happening by chance being over one in ten thousand.

Games can be saved and loaded as ▶


Sargon III is definitely "no frills". There is no 3D board

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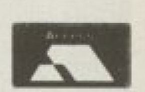
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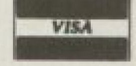
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	CM2000	FDE	Col X	Sargon	TOTAL
Chessmaster	......	11½011	0011½1	1011½1	12½
FDE	00½100	......	110½½1	½111½1	10½
Colossus X	1100½0	001½½0	......	0½½111	8½
Sargon III	0100½0	½000½0	1½½000	......	4½

The league table after a two-month round robin, each match consisting of six games. One for a win, half for a draw

MATE IN ...	TWO	THREE	FOUR
FDE	1 sec	5 sec	33 sec
Colossus X	3 sec	5 sec	467 sec
Chessmaster	3 sec	54 sec	518 sec
Sargon III	-----	63 sec	695 sec

Figure II: Speed of response

◄

well as erased or renamed. Moves can be printed: Chessmaster uses proper algebraic notation (Bg2 or Nxe5) as opposed to Colossus's over-fussy notation (Bf1-g2 or Nf3xe5) or Sargon's mediaeval notation (F1-G2 or F3xE5).

There are 100 grandmaster games to look at, including some recent Kasparov-Karpov battles.

Chessmaster 2000 is the best presented and the strongest program of the three on trial here. Its only weakness is its endgame. The upgraded Chessmaster 2100, which is presumably even stronger, is due for release any moment.

ALL three programs obey the laws of chess, including underpromotion and draws by threefold repetition of position and the 50 move rule. They can all force the standard mates, including the difficult King, Bishop and Knight against King.

All three programs announce mate. Colossus X and Sargon III resign gracefully in lost positions. Sargon III allows you to offer draws, and will declare a draw when there is not enough material to force a win – King and Knight versus King, for example.

I decided to set up an all-play-all tournament between the programs to find the strongest. FDE is my Fidelity Designer Excellence, a dedicated chess computer which cost £155 and which has an advertised US Chess Federation grade of 2,083. Each challenge consisted of a match of six games at 30 seconds per move or nearest equivalent.

The result, as shown in Figure I, leaves little doubt as to which program is the strongest player.

Chessmaster 2000 has a good opening book and a very powerful middlegame in which it frequently builds up strong attacks from nothing. All three of its losses were in the endgame, in which Colossus X, if it managed to survive, outplayed it.

Colossus X would have done better if it had desisted from playing odd openings which gave it poor middlegame positions, made worse by a stolid and unadventurous playing style – three of its games against Sargon III were over 100 moves.

Sargon III's style is attacking, rather like Chessmaster 2000, but less successful because it is unable to plan in depth. All three of its draws were by repetition, when it had a superior position but ran out of ideas.

The Fidelity computer did well, except against Chessmaster 2000 when it repeatedly lost in the middlegame. After a long book opening – up to move 20 in both cases – it is remarkable how the FDE neglected his queenside and how quickly Chessmaster 2000 took advantage.

To test processing speed I set up mates in two, three and four, and asked the programs to solve them. The results are shown in Figure II. The blank in Sargon III's results is where, despite prodding, it refused to find mate in two. It took four seconds to find mate in three instead.

The FDE dedicated computer, as you would expect, is the fastest. There is not much to choose between the three Amiga programs in speed.

All three programs will give most players a good game, and are about a fifth of the price of a chess computer of similar playing strength. A bargain in anyone's book.

OVERALL RATINGS	Col X	Sargon	CM2000
Estimated ELO	1800	1850	1950
Presentation	13½	12	15
Flexibility	12	9	10½
Ease of use	12	15	13½
Range of options	10½	12	13½
2D board	6	13½	15
3D board	13½	--	13½
Openings	7½	10½	13½
Middlegame	10½	12	15
Endgame	13½	10½	10½
TOTAL	1899	1944½	2070

Figure III



Chessmaster 2000 – king of the Amiga chess castle

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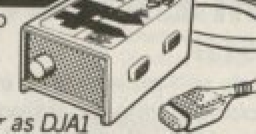
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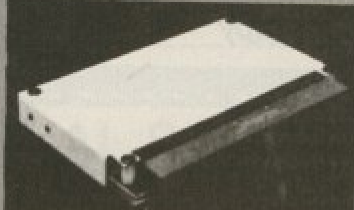
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You can design different ways of presenting the data, e.g. straight list, address labels, tabulated data.

But you do not need Protext to use Prodata - it is a powerful database manager in its own right, ideal for all your filing applications. The program uses a simple set of menus which may be used with the keyboard or a mouse, as required.

Prodata is being launched simultaneously for the IBM PC and compatibles, Commodore Amiga and Atari ST, at a special introductory price of £55, available only until 30th November 1989. The recommended price will then become £79.95.

```
PRODATA v1.00  (c) Arnor 1989  Printer (P1) EPSON    Directory E:\PROD
Open: INVOICE  (49F)  Recs: 12    Sel: ALL  Layout: 1  Index: 0    15:23:22

                         INVOICE         Select field name
                                      Field  4 : Address 3
                                      Field  5 : Address 4
                                      Field  6 : Address 5
 Invoice Address                   Del Field  7 : Del Addr 1
                                      Field  8 : Del Addr 2
 ----------------------            --- Field  9 : Del Addr 3
 ----------------------            --- Field 10 : Del Addr 4
 ----------------------            --- Field 11 : Del Addr 5
 ----------------------            --- Field 12 : Telephone
 ----------------------            --- Field 13 : Fax
 ----------------------                Field 14 : Contact
                                      Field 15 : Invoice Number
                                      Field 16 : Order Ref
 DATE               Your Ref          Field 17*: Quantity 1
                                      Field 18 : description 1
 ????????????????????                 Field 19*: Unit Cost 1
Top left = (0,0). Pos = (3,17). Length=20.
Variable name: DATE                   Use ◇◇◇◇ to move, ^◇ and ^◇ to resize
[F]ield  [T]ext  [V]ariable  [L]ine draw  [A]ttrs  [D]el  [E]dit  [TAB] next:
```

Designing a new layout

```
PRODATA v1.00  (c) Arnor 1989  Printer (P1) EPSON    Directory E:\PROD
Open: ARNOR    (16F)  Recs: 3621  Sel: ALL  Layout: 2  Index: 1    15:55:04

 Name     | Mr G B                | Smith      Computer       | IBM PC AT
 Address  | 34 Mulberry Way                    Protext Reg    | 7312
          | Lower Thrashley                    Date Purchased | 13/8/89
          | Witton-under-the-Hill              Prodata Reg    | 4447
          | Wittonshire                        Date Purchased | 3/2/90
          | WI12 5GT                           Notes
 Tel No   |

[E]dit  [F]ind  [A]dd  [C]opy  [D]elete  [P]rint  e[X]port  [I]ndex  [L]ayout
[◇] Back  [◇] Next  [^◇] First  [^◇] Last  [U]nselect  [ESC] Quit.  Opt->
```

Displaying and entering data

Using Prodata is simplicity itself :-

All facilities are accessed from a few simple to use menus. To set up a new database file you merely need to enter names for each data field - you need not concern yourself with the size of fields or the type of data to be stored or even the total number of fields.

Variable length fields, up to 300 fields per record. Data files automatically extended as data is entered. Extra fields may be added at any time.

Indexed files may have up to 5 indexes, which may use supplementary sort fields. Instantly switch indexes to change sorting method.

Flexible layout design includes field, text and variable items, line drawing mode for boxes, layouts wider and longer than screen sizes with automatic scrolling, formatting of items (decimal places, justify, centring), printer attributes (bold, italic etc) both global and on each item, special 'attach' attributes to join items. Duplicate layout facility. Up to 100 different layouts.

Printing. Comprehensive set of printer drivers, full use of printer control codes, options to set all margin sizes, headers and footers, microspacing used to give correct output in proportional fonts, background printing, print to printer or to a disc file.

Filtering of data using any expression, Filters stored with descriptions, selectable from menu. You can instantly switch between displaying all records, those selected, or others. Individual records may be de-selected after filtering.

Importing and exporting of data in different formats suitable for other software including Protext. Selective importing allowing data to be checked and altered as it is imported.

Undo changes. The most recent data changes / deletions / insertions are logged and may be reversed to allow you to correct mistakes easily.

Password protection. 5 levels, ability to protect individual layouts to restrict access to sensitive data.

File management screen with directory map, rename, erase, copy, type, attribute display and alteration.

Powerful expression evaluator provides date calculations, substrings, conditional expressions, rounding. The result of an expression can be assigned to a field throughout the database.

Data entry verification. Fields may be required to be integer, number or date within a given range, or a string subject to a maximum length and mask.

Data editing with ability to duplicate an existing record, insert and overwrite mode, insert and delete line that automatically move fields up or down, swap characters, convert to upper or lower case, change layout or index from display mode, finds individual record almost instantly.

International compatibility includes full use of accented characters including correct sorting, keyboard configurable to 10 different national layouts, printer drivers supplied to print special characters.

Menu driven. Simple, easy to use system of menus and pop up windows. Keyboard or mouse may be used.

Plus macro record mode, batch delete facility, configuration program, example data files, on screen indication of bold, underlining, italics, comprehensive manual.

Save £25 on PRODATA

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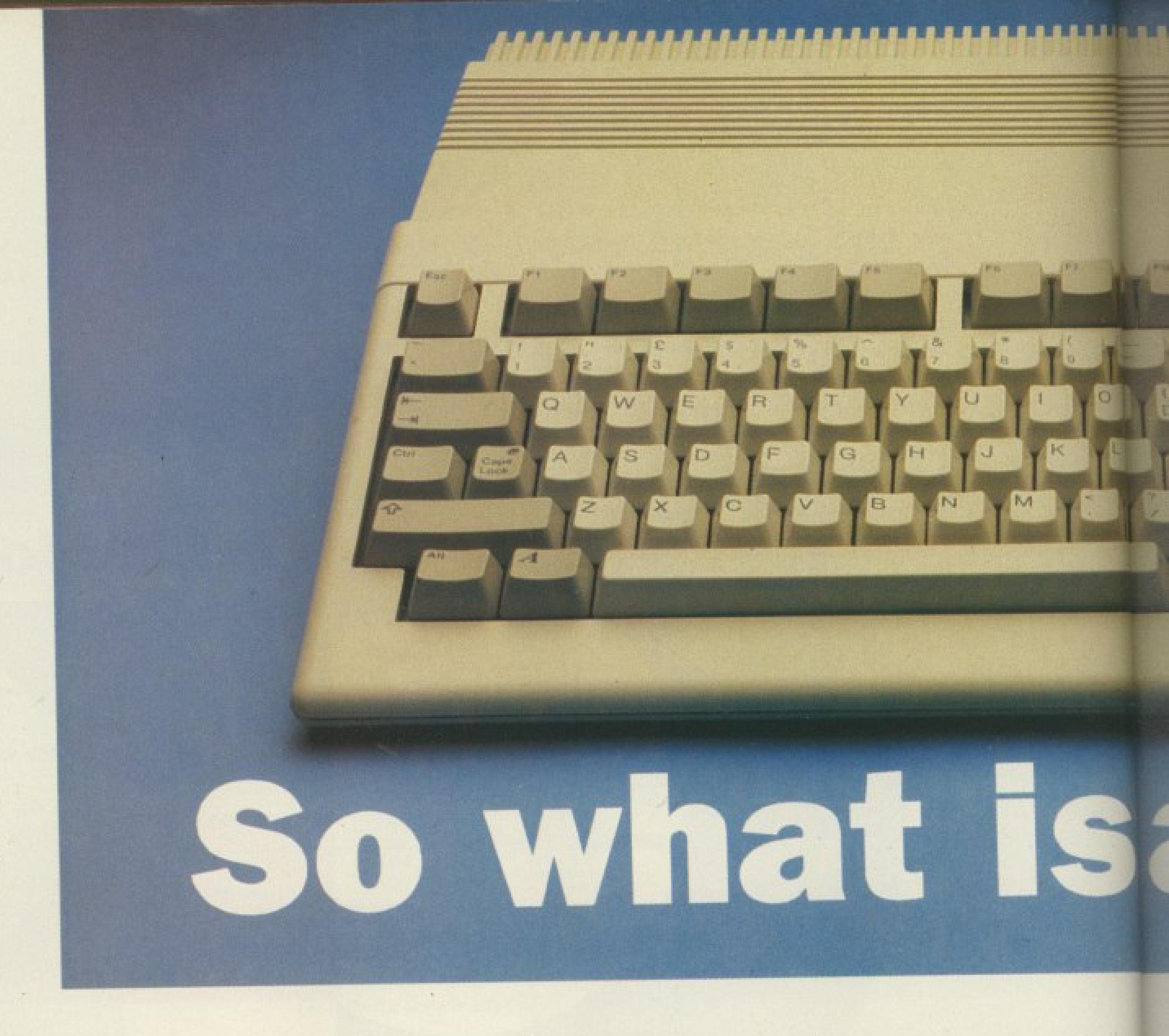


Into the 1990s...

A special report on Commodore hardware and software products on display at the 1989 show

THE PERSONAL COMPUTER SHOW

SPECIAL



So what is a

MANY people who will have picked this up at the PC Show won't know what an Amiga is. You may think you know what an Amiga is, but be prepared to be surprised. The Amiga is a schizophrenic machine. Initial design was started at a time when games consoles were an incredibly good way to make money. But the designers wanted to produce something better than the best games machine anyone could dream of. They wanted to build a computer.

The hardware was designed in Silicon Valley to produce a combination of custom chips which would share the burden of running a program. Most small computers can only do one thing at one time. So if it is playing a tune it cannot clear the screen, or add two numbers.

The Amiga designers reasoned like this: Why not have special chips to do the special jobs. This good idea was not original. But putting such technology into a home computer was. Previously multi-processing had been the province of big and expensive mini computers.

The software was written in England. Again it represents a radical advancement in technology. The AmigaDos operating system has a pedigree which evolved from mainframe computers; the Amiga was the first home machine which was powerful enough to run it.

The biggest feather in the AmigaDos cap is multi-tasking. It treats the machine as a collection of parts, not as a whole computer. Programs decide which parts they need at any one time and share the resources. The result is more than one program can be run at once.

For a while rival manufacturers poo-pooed the need to do this. Today they are just starting to produce software which multi-tasks. The IBM version is still incomplete, needs a very expensive machine and has little software to go with it. Apple has announced some software for next spring; it will also need an expensive computer.

The Amiga is still the only computer which can multi-task and share the burden of sound and graphics with separate chips. The hardware which makes the Amiga the world's best games machine is the platform for software which makes it the world's best business machine. So it is not surprising that the computer which does everything better than its rivals suffers a bit of an identity crisis.

The two identities are reflected by the two machines, although deep down they have a common heart, the uses to which they are commonly put reflect the diversity of the Amiga's abilities.

The Amiga A500

THE baby Amiga is the machine most schoolboys dream of – a 16 bit 68000 processor, synthesiser quality sound and a palette of 4,096 colours. With 512k which can easily be doubled to a megabyte using a slot in card, the A500 is a powerful games engine.

The work of manipulating the high resolution graphics is eased by advanced custom chips. These provide sprites – images which can be moved over a picture on the screen without interfering with the main display – hardware scrolling which allows the view on the picture to tilt and pan without the need for complicated calculation, and sounds stored as digital waveforms which can give compact disc quality speach or music.

All these features are powerful, yet they don't sap the 68000's strength. The 880k disc



...s an Amiga?

THE PERSONAL COMPUTER SHOW

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drive built into the side stores more information than rival systems.

The unique Amiga Workbench is a friendly way to use the machine. By keeping files and programs in drawers even large capacity discs are easy to handle. Programs can be run, files copied deleted and shuffled all without a jot of typing. Running more than one program is simple thanks to Workbench's windowing system.

The protocols for using Workbench are carried through to the programs themselves. Commodore has issued guidelines to programmers which mean that once you have mastered the use of one package the rest are easy to learn.

The Amiga 500 is expandable. There is a huge selection of add-ons from both Commodore and independent manufacturers – graphics tablets, processor cards, hard discs, memory expansions, video and sound digitisers and a some weird and wonderful tools such as 3D glasses.

The A500 is an amazing home computer, yet it needs no extras. The machine can be plugged into the family telly using the supplied modulator unit to get you up and running.

The Amiga A2000

WHILE the Amiga 500 is a powerful home machine the A2000 finds its place in businesses. It shares all the powerful features of the A500 but adds more scope for expansion. The machine comes with one megabyte of memory and can easily be expanded to nine megabytes. The 16 bit processor can be upgraded to a 32 bit 68020 with a plug-in card. This quadruples the performance of the Amiga, with substantially greater improvements in maths-intensive work.

A number of hard disc controllers give you the choice between price and performance. Hard or floppy drives can be fitted in the Amiga's 3.5in and 5.25in mounting bays.

The Amiga 2000 can be made IBM compatible. With either the 8088 XT to 80286 AT bridgeboard installed the Amiga will run the vast array of PC programs. It does this without losing the Amiga's ability to Multi-task. While only one PC program can be run at any one time, the Amiga can run as many programs as you can fit in memory. Datum can even be shared between PC and Amiga software.

The Amiga 2000 will accept PC-compatible cards to give a complete emulation. Not only do you have two machines in the box, you can use both of them at the same time.

The Amiga 2000 is the professional video user's first choice. The vast array of video titling programs and hardware to interface to TV equipment means that it is used in television studios throughout the world. Commodore and independent companies are working on special effects peripherals which manipulate images.

The Amiga 2000 boasts a custom video socket which allows high resolution monitors to be connected. These are ideal for desktop publishing and spreadsheet work. Industry standard Ethernet cards allow the Amiga to be networked to most other computers, from the biggest mainframe to the humblest PC, sharing data and making you more productive.

The Amiga 2000 is an advanced multi-tasking computer. It leads the way whether you work or play.

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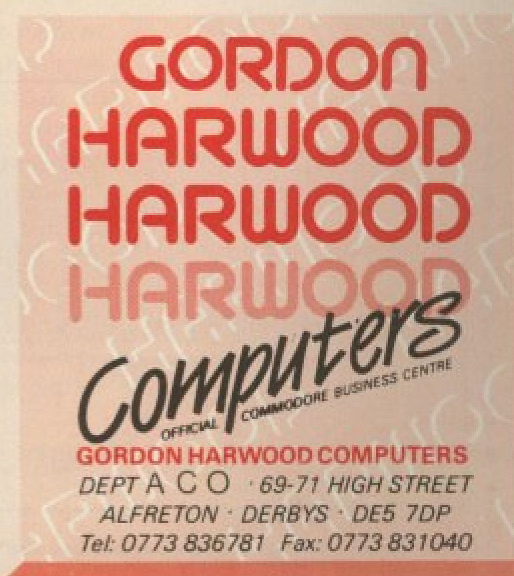
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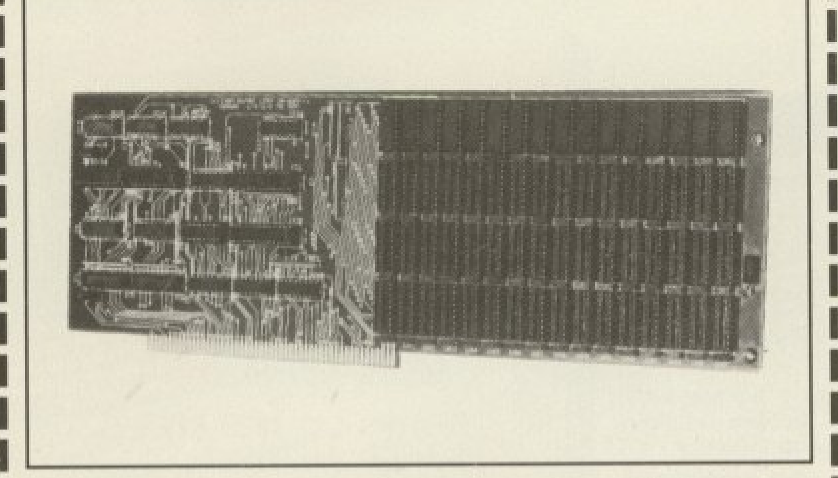


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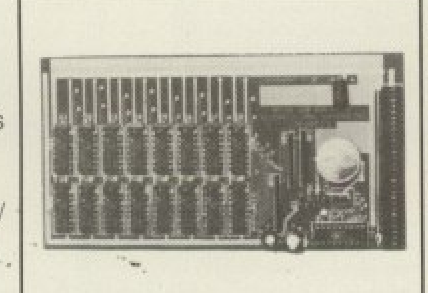


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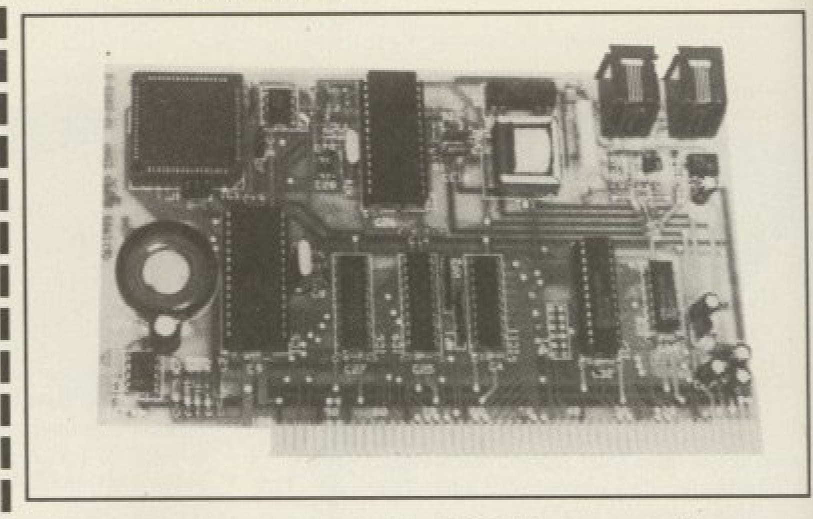
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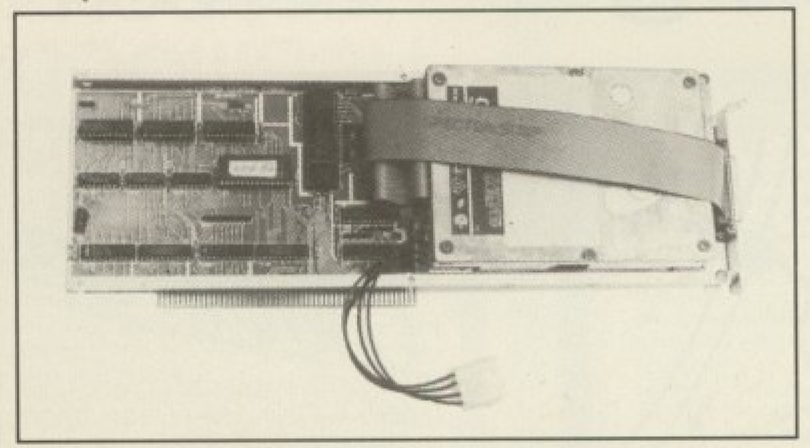
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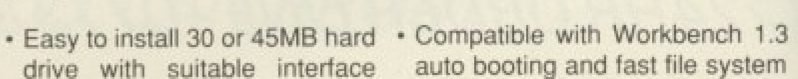
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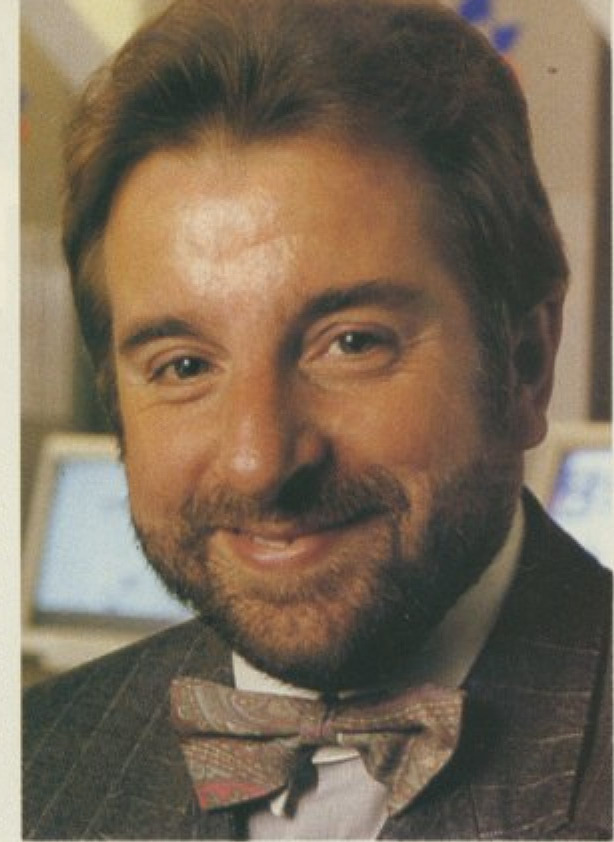




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SPECIAL

JEFF EARL

Commodore's man in the hot seat

JEFF EARL is the most important man in Commodore UK. He is not the most senior, nor the most technical – he is marketing manager. His job is to make sure Commodore computers regain the top spot in the UK, a position they held in the early 1980s.

The UK renaissance for the 1990s has no better focus than Jeff, who has worked for Apple and more recently for Toshiba, where he spearheaded that company's growth from nothing to being the major manufacturer of IBM portables and Desktop portables.

He is one of a number of industry high flyers who have joined divisions of Commodore around the world, and he states: "The reason Commodore has spent so much money on a professional portfolio of people is to provide a foundation for new product introductions".

The Amiga is such a flexible machine that it needs someone with Jeff's abilities behind it. Both the man and the machine understand AmigaDos, MSdos and Unix. Jeff Earl sees the flexibility of the Amiga as its major strength.

The Amiga 500 reigns supreme as a home computer. Atari has tried to ape it by adding more colours, stereo sound and hardware scrolling to the ST. It still lags behind in every respect. "The Amiga is a winning machine", says Jeff.

While software houses used to write for the ST and then consider a port, more and more now view the Amiga as the lead system. It will be interesting to see if there is a move among software houses to support 1 meg machines. The A501 ram pack suffered when ram prices rose early in the year. With the problem subsiding, we may see the price reviewed. "It will depend on supply and demand", says Jeff.

Just as impressive is the Amiga 2000. Jeff describes it as Commodore's best kept secret. "The more I see", he says, "the more I realise its power is in its flexibility. I was at Apple at the time of the Lisa and during the early days of the Mac. The 2000 has some benefits that Apple would love, such as colour, from its creation. And we've continued developing ".

The analogy that the Amiga has been like a Lisa – a really desirable but flawed machine which only took off when it was revised and became the Mac – is often used by developers.

Jeff sees the trigger to the Amiga's launch into the big time as being Workbench 1.4. "Maybe the OS wasn't what it could have been, but 1.4 is so different perhaps it should be called 2.0".

There will be developer guidelines to provide a consistent user interface, expanding on the current requesters. These guidelines will encompass Amiga Unix, so that the high flying executive can switch between an Amiga under AmigaDos, Amiga running Unix or the company mainframe running Unix, without having to be aware of which machine or operating system is doing the work.

The Amiga, and in particular the A2000, needs some software support. There will be a concerted effort by Commodore to get the big Apple and IBM software houses to wake up to the advantages of the A2000. Workbench 1.4 and future Amiga machines are the tools with which they will do this.

The Amiga will become a very different computer when it runs Unix. It is an operating system fraught with politics. In a similar way to the Workbench upgrade from 1.3 to 1.4, Unix is about to be upgraded from v3.2 to v4 – pronounced five point four.

Amiga Unix, which is called Amix, will be a very polished program. "You can't go in with a product which looks right but falls over", says Jeff. While techies may be happy with some of the fundamental parts of a system, Amix will go beyond this and provide a friendly, Mac-like environment.

This philosophy of getting the product right extends to all future Amiga developments. It is the reason why we will not see Workbench 1.4, the enhanced chip set, nor some of the hardware *Amiga Computing* has talked about recently, until the New Year.

Part of the reason for this delay is to allow developers to get to grips with the new systems and reduce the problems inherent in making changes to an established computer.

There is going to be an amazing change between now and next July, predicts Jeff Earl, who has tremendous confidence in the hardware designers. Commodore is looking for growth in four areas – the leisure industry, with PCs, where it wants to be a leading supplier of high power 80486/80386 machines, with Unix systems and with desktop portables.

With Atari on the run, Commodore is gunning for Apple and Compaq. Jeff Earl is one of the team which will make it happen.



SPECIAL

Twenty megab

Simon Rockman checks out Commodore's A590 Hard Drive Plus

See the Hard Drive Plus on the Commodore stand

ANYONE who has added an A501 or second floppy to their A500 will know that it makes a big difference to the useablity of the system. That change is insignificant compared with the advantages offered by a hard drive.

The A590 is smart, coloured to match recent, cream A500s – early ones were nearer to white. The styling matches that of the computer and it is small and neat, partly because the footwarmer power supply sits on the floor like the A500 unit.

The front has lights which show when the drive has power and when it is being accessed. The back has an RS232 lookalike connector which is actually a SCSI (pronounced scuzzy) port for connecting more drives, tape spoolers or even some laser printers. There is a socket for connection to the power supply brick, and a row of four little DIP switches. Two switches look after the device numbers for adding extra drives, a third is reserved for future expansion and the last one sets the system to autoboot if you have a 1.3 Kickstart rom in your Amiga.

Fitting a special clip, then slotting the drive on to the side of the computer needs a bit of courage and a hearty shove. It means that the whole unit is solid. Assuming you have a Kickstart 1.3 rom and the switch is set on the drive, power to the computer sets the unit humming noisely into life. Workbench appears in about 15 seconds depending on what Startup-Sequence has to do. Kickstart 1.2 owners will have to boot from floppy. From then on your Amiga is transformed.

Buying an A590 nets you three separate units in one box – a ram expansion, a hard drive controller and the 20 meg hard drive. Up until now getting this kind of kit together was a techno junkie's dream and sane user's nightmare.

Ram expansion is the simplest feature; getting to the sockets the hardest part of installation. The outer casing, the drive and then a metal cage have to be removed before you can get to the slots. This jigsaw puzzle is a result of keeping the unit small. Since you only install ram once it is worth it.

Memory can be expanded by adding chips to give 512k, one or two meg in addition to the ram fitted in your computer. It is worth noting that the memory in the drive runs faster than either the ram in the computer or the A501 expansion unit.

Speed costs: The chips which need to be fitted are rated at 120 nanoseconds. This is pretty fast. Size counts: Each chip stores 256

abyte bargain



SPECIAL

by 4 bits, or one megabit per chip. To keep power consumption down and so keep the heat generated to the minimum, the chips need to be Cmos, as opposed to the cheaper Nmos. A setup with all the sockets filled still gets pretty warm. You will void the warranty if you fit Nmos chips. All these factors combine to make the parts expensive. Suitable chips cost around £20 each. You'll need 16 chips for two meg so it is not surprising Commodore sells the unit empty.

Commodore is proud of the design work it has put into the interface – lessons were learned with the A2090 and A2090a. The new interface will cope with big drives up to 600 megs, and you can attach eight drives at a time using SCSI. There is no through bus, so you can't plug any peripherals into the A590.

Getting data to and from the computer as fast as possible is the interface card's primary job. For this reason it uses direct memory access (DMA). Non-DMA drives use the central processor to read bytes from the disc and shove them into ram. A DMA drive uses its own custom chippery. This is not only quicker, it allows any other programs your Amiga may be running to work at normal speed.

Two types of drive can be connected. XT or SCSI. Both are better than the ST-506 sold with A2000s and IBM type PCs. Unfortunately SCSI drives are expensive, partly because there are so many IBM clones in the world ST-506 drives benefit from economies of scale, partly because SCSI drives are made to a higher spec.

A 45 meg SCSI drive *without controller card* will set you back £500. Commodore has compromised and fitted a cheaper 20 meg XT drive. This seriously affects performance when compared with more expensive systems.

Speed freaks can either whip out the XT unit and raid the piggy bank to fit a SCSI drive – bye-bye warranty – or add an extra drive externally. This should see the performance improve from a data transfer rate of around 150k per second to a theoretical rate of more than a megabyte per second, but for that you will be paying over £1,000.

What makes the A590 special is the care with which it has been designed. Any faults are the result of having to keep the price down, something Commodore should be praised for.

There is a rash of hard drives appearing at the moment, most of them are at least 40 meg, but they will all have to go some to beat Commodore's Real Thing.

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SPECIAL

Visit London, go to the show and win a hard drive

THE PC Show is a great place to see what the computer world has to offer. But wouldn't it be nice if there was a show which did not split up the interesting Commodore machine with boring Apricots, Acorns and Ataris?

Have no fear, the Commodore Show is here. Well, not here exactly, it's at the Novotel in Hammersmith. The show runs from November 17 to 19 and is the ideal place to pick up some bargains with only 30 shopping days left until Christmas.

Details of the attractions are still sketchy, but you can be sure Commodore will lay on something special. This is the latest in a long tradition of Commodore Shows which date back to the time when computers wore short trousers. You probably won't find a copy of the Supersoft Guide to Peek and Poke on the Pet, but you will find the very latest games, peripherals and utilities all at knock down prices.

The exhibitors form a Who's Who of the Amiga world, so of course *Amiga Computing* will be there to answer your questions and take your money.

But the best news is that Commodore is running a competition for readers. Take the form below along to the show and you will save 50p on the admission price of £5. You will also be entered for a free draw to win a Commodore 20 megabyte A590 Hard Drive Plus.

At the end of each day all the entries will be collected and a winner picked at random. Only one entry is allowed per person, but photocopies are acceptable. Winners will be notified by post.

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THE PERSONAL COMPUTER SHOW

SPECIAL

Speed

One day all Amigas will be made this way. Jez San gets a taste of the future

COMMODORE'S A2620 is a neat, densely packed expansion card that plugs into the Co-Processor socket in an A2000. It will not work in an A500.

Installing a CBM 68020 card is a trivial matter. Power up, and if all goes well, you should be welcomed by that familiar left hand holding that familiar disc? Why is that guy left handed? The artist who drew it was right handed, copying his left hand holding the disc, so they say.

Holding both mouse buttons down with your right hand and pressing various other pointy-parts of your anatomy on *Ctrl-Amiga-Amiga* you get a menu of three configurations. You can either boot into a vanilla AmigaDos 68000, supa-doopa AmigaDos 68020, or even 68020 Unix if you have the software. If you don't bother holding down your mouse buttons on startup, the machine will default to AmigaDos 68020, unless you have been playing with your jumper switches on the main board.

The A2620 board comes in its minimum configuration with a 14.3MHz 68020, 2 megabytes of fast 32 bit ram (100ns), a 14.3MHz 68881 (that's a math coprocessor to you and me) and a 14.3MHz 68851. The last chip is a memory management unit (MMU). These perform virtual memory, and address translation tricks required by Unix and other power-operating systems. If your 68020 card hasn't got it, then you can't run Unix.

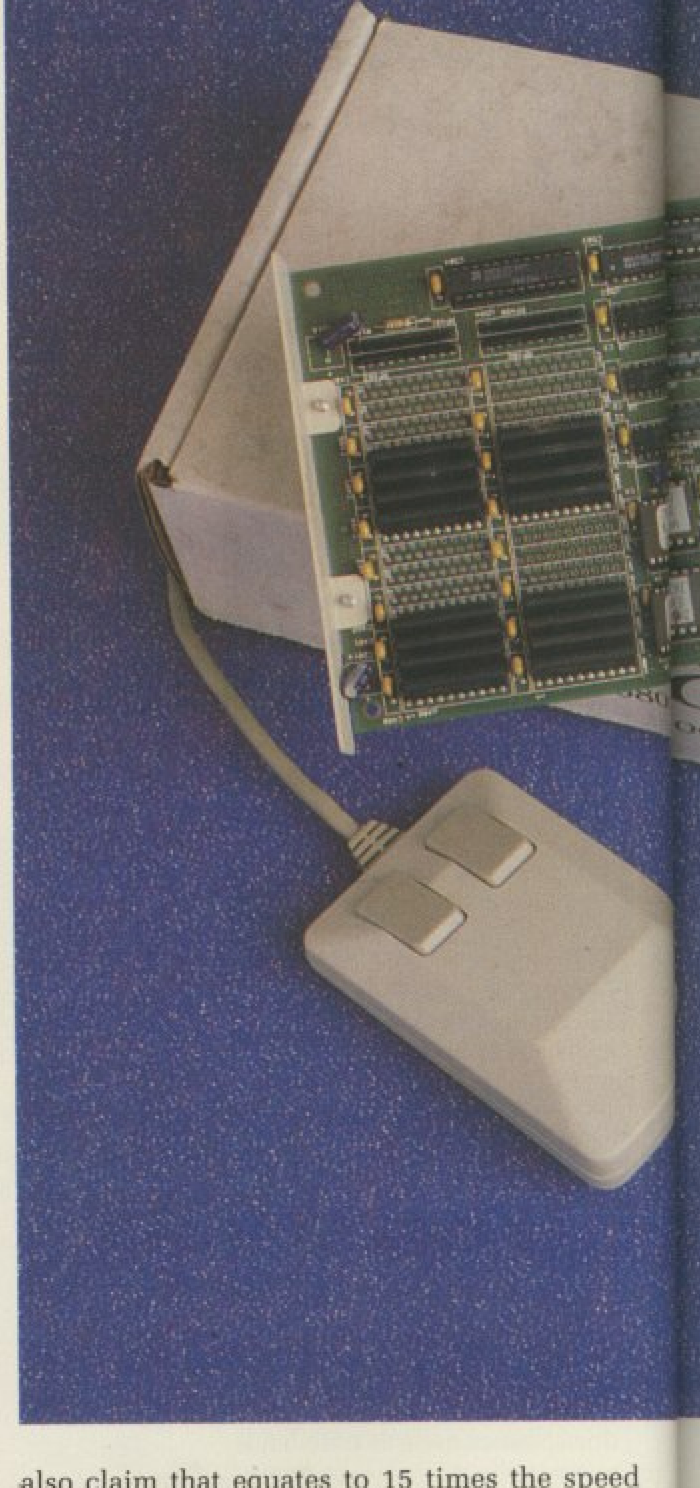
Maths freaks can change the 14.3MHz 68881 for a 25MHz one and move a jumper on the board. This will speed up things like ray tracing, but if you have looked at the price of 25MHz 68881s you are likely to have decided it is better to grow old waiting than blow your savings on one chip.

The 68020, being a 32 bit processor, isn't being run at full tilt unless it finds 32 bit ram. The Commodore's A2620 runs its clock at twice the standard speed of an Amiga, making it twice as fast, but the 32 bit ram and sophisticated cache inside a 68020 ends up quadrupling the speed of a standard Amiga.

For mathematical applications this will be even better, as the 68881 can do some things at 10 or 20 times the speed of the normal Amiga math routines can manage, and if you use Workbench 1.3 the improvements will often be transparent. Ah, the advantages of a proper operating system.

Commodore's 32 bit ram is autoconfigured to reside in the system's 24 bit address range. What that means in layman's terms is that it will work with existing hardware devices like DMA hard disc controllers and video boards. The A2620 design is flawless.

The public domain benchmark SI claims that Commodore's 68020 runs at 4.5 to 4.8 times the speed of a standard Amiga. They



also claim that equates to 15 times the speed of an IBM PC, though I'd argue how they worked that one out. Lies, damned lies, and benchmarks.

I tried a few of my own kludged together benchmarks. Like putting individual 68000 instructions in a tight loop and seeing their relative performance compared to a normal Amiga. In most cases my tests proved a figure of four to five times the speedup. With real



SPECIAL

world programs like assemblers and compilers the difference is staggering.

Ignoring the unchanged disc performance, most programs show a three or four times speed improvement overall. Even programs that run solely from chip memory like StarGlider 2 show significant improvements, although only about two or three fold. This thing really flies. But then, you get what you pay for.

During my one-month testing of the CBM A2620 I found that most programs would run perfectly on it. Some self-booting games may suffer problems due to the Amiga running unexpectedly fast. The good thing about the Commodore card is that if you find a program that doesn't run, you simply do the five fingered salute – both mouse buttons, and the normal three fingered one – and you can boot into a 68000 minus the 68020 and 32 bit ram. A very effective bridge across the compatibility gap with some games, though with business or productivity applications there should be no compatibility woes.

Today the A2620 may seem like an expensive luxury, but it points the way for Amigas of the future. Chip costs mean that we won't see 68020 based A500s for a long while. But when it comes the upgrade will be simple. Then there will be room for the next power-users card – a 25MHz 68030, which is already at the prototype stage.

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SPECIAL

Bundle!

WHO would you want on your side in a bundle? The Caped Crusader seems a good choice. Commodore and Ocean have teamed up the Amiga with Batman to produce an amazing Christmas bundle.

This is the first time an unreleased program has been put into a bundle and it looks to be a winner. Some computer manufacturers stick whatever they can get cheap into bundles. Commodore has concentrated on quality.

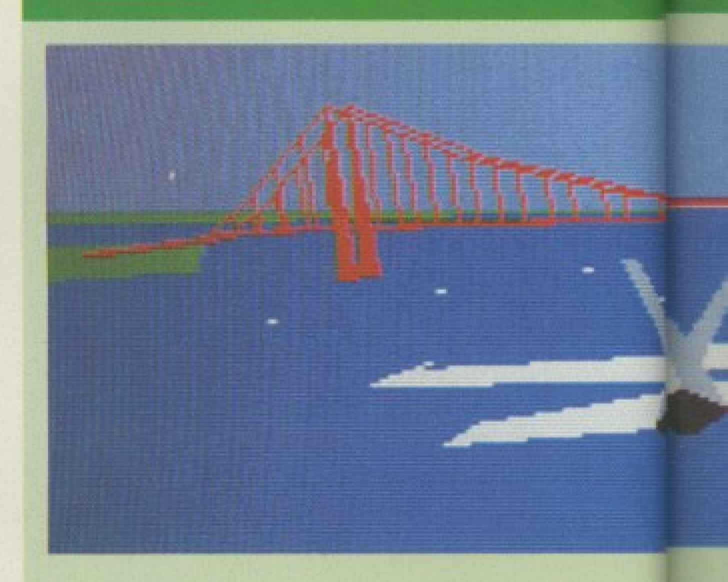
Still Batman is not alone. The pack consists of a modulator which lets you connect the Amiga to an ordinary TV and four programs, Batman, Interceptor, New Zealand Story and Deluxe Paint II.

BATMAN

THE biggest film of the year has spawned the biggest project for Ocean. A large team of programmers, artists and games designers has been assembled to work on the different levels. Experience the danger of taking on the Joker within his chemical works. Fly the Batwing to take out the poison balloons and drive the Batmobile for all you are worth to get to the church on time, where the flat faced felon who put the fun into funeral is tolling a bell – for you.



F/A18 INTERCEPTOR



REACH for the sky is the best-selling Amiga only game of all time. Based on one of the most modern attack aircraft the US has to offer you have to stop some F-16s from defecting, protect the President and take out some MiGs.

Other missions include a head-to-head confrontation with a low-flying cruise mis-



PREVIEW

NEW ZEALAND STORY

ARE you a man or a mouse? Well a Kiwi actually. The cutest Kiwis are to be found in Ocean's coin-op conversion. This is a game which shows that the Amiga can be every bit as good as an expensive dedicated arcade machine.

You guide a character around the islands of New Zealand. Armed with a bow and arrow you can pick up extra weapons with which to fend off bats, flying cats and evil frogs. Well no one asked for realism in computer games.



DELUXE PAINT II

EVERY computer has one program which is a lynchpin in its development. The BBC had Elite, the Archimedes had Zarch and the Amiga has Deluxe Paint from Electronic Arts. This is the program Andy Warhol used to demonstrate the Amiga at its New York launch. This is the program which is used to design a million alien sprites. This was the program every Amiga owner should have had.

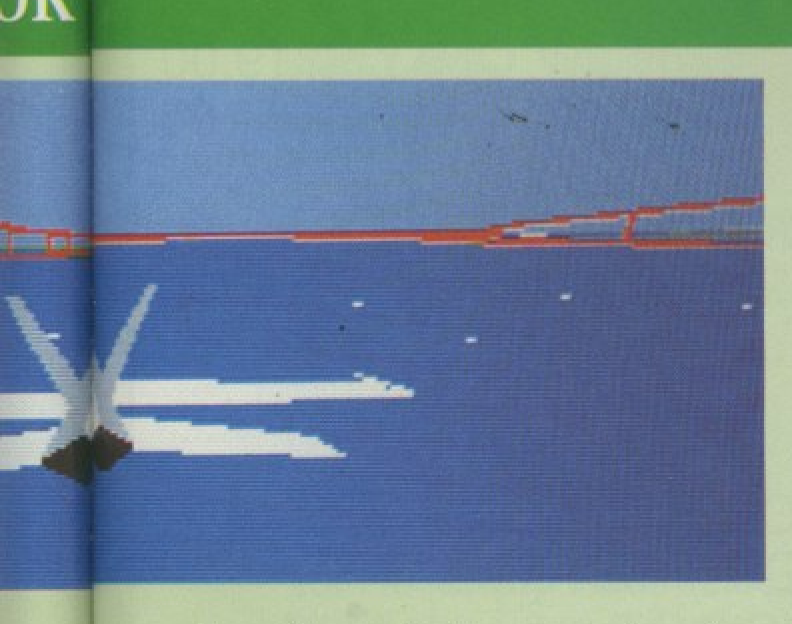
Then things changed. Deluxe Paint got better. The program which was first written to show off the Amiga when it was launched grew up with the machine. The result was Deluxe Paint II. A fine and polished art program which provides everything you need to draw, design and paint on the screen.

Beyond this there is animation, a feature offered by Deluxe Paint III which needs an expanded Amiga.

Deluxe Paint II is more than a fun tool. It is an introduction to using the Amiga. The rules you learn for loading and saving pictures, for selecting colours and brushes and for running the program are all carried through to other Amiga programs. Learning is fun



OR

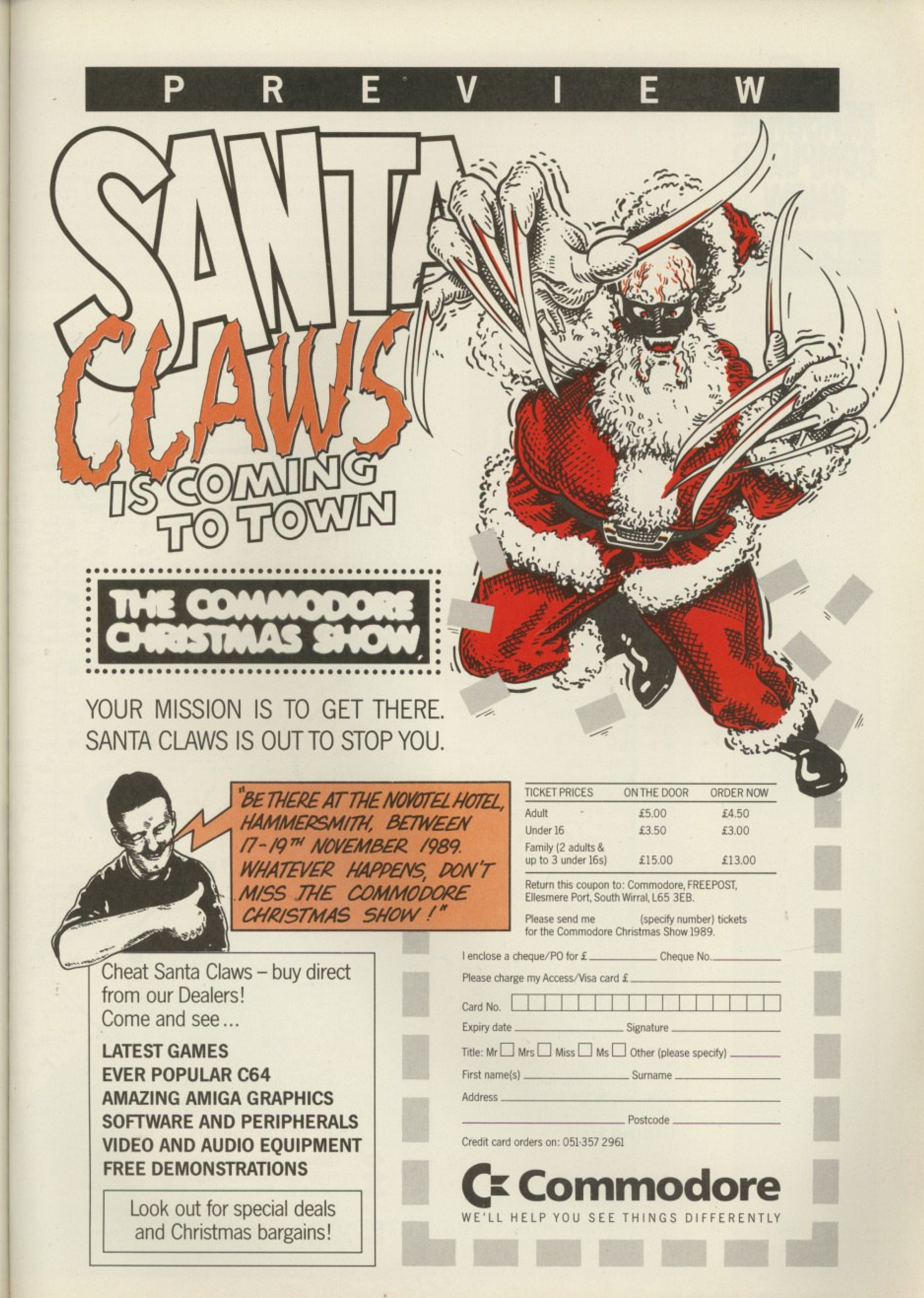


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THE PERSONAL COMPUTER SHOW

SPECIAL

SO you thought you might like to go to the show. It is the best chance you have to see what the major computer manufacturers, software houses and everyone who is part of the microcomputer world has to offer.

It is a big, big show, so this is your guide to where the very best Amiga goodies are to be found.

The main attraction, of course, is the Commodore stand.

Join the throng in the arcade to sample some of the latest games. Your admission fee of 50p will go to the Save the Children fund.

The stand is divided into different areas which show the varied uses to which an Amiga can be put. This is your chance to meet and talk to Amiga experts.

The Commodore theatre is more than just a comfy place to sit down and plan your attack on the rest of the show.

There will be a rolling sequence of informative demonstrations with the emphasis on productivity from Wednesday to Friday, and games on Saturday and Sunday.

With your most comfortable shoes done up tightly, elbows sharpened for the crowd and this map you should have no problem in seeing everything you want to see.

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25 UBI Soft
26 US Gold/Gremlin
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Central Hall

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32 Cheetah
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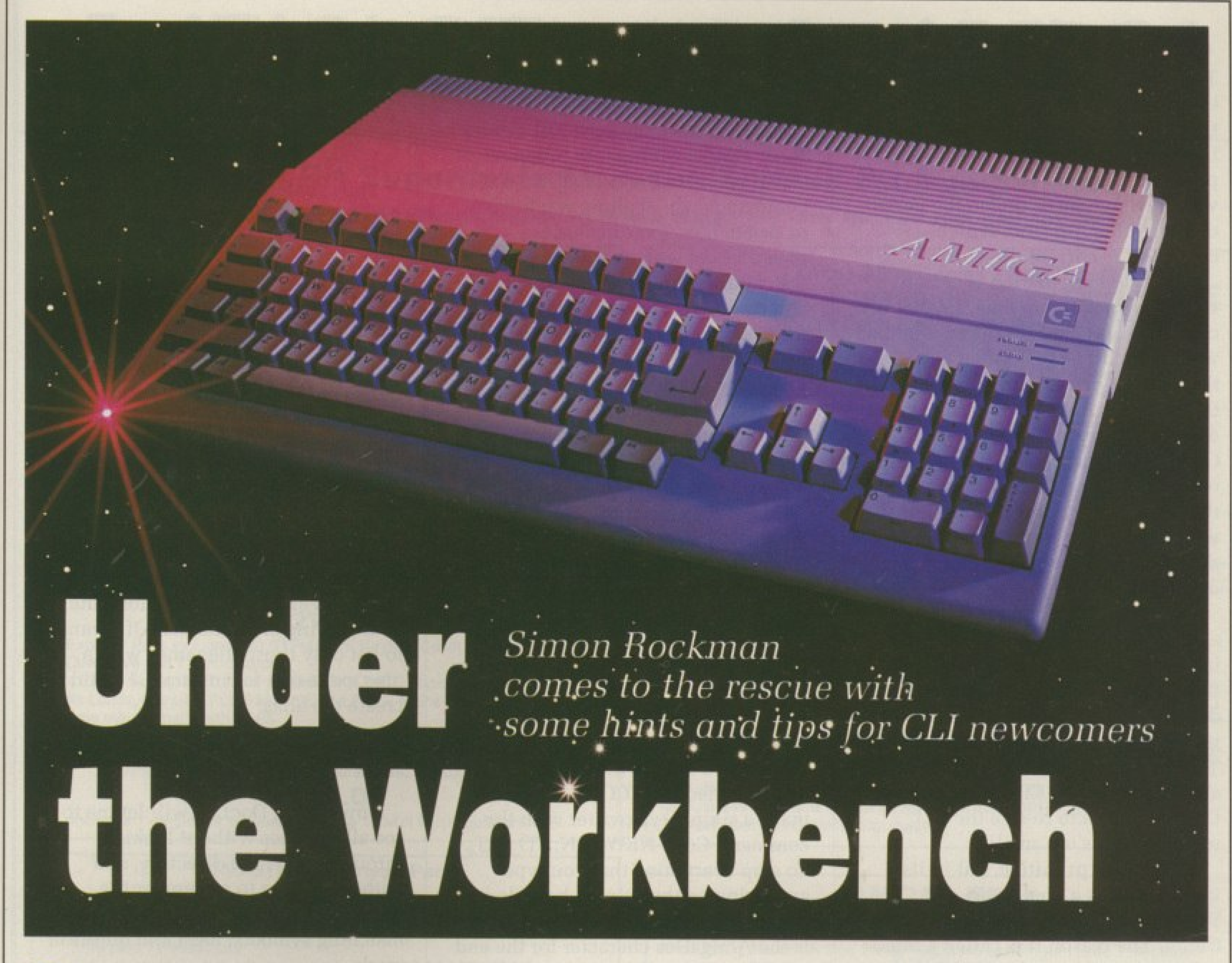
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Under the Workbench

Simon Rockman comes to the rescue with some hints and tips for CLI newcomers

SINCE *Amiga Computing* began sellotaping a disc to the front cover we've become aware of just how neglected CLI is. Most Amiga owners would be surprised to discover that lots of programmers never use Workbench. This is because they have learned that by using the CLI they can be much more productive.

If you have come to the Amiga from a C64 or Spectrum, an awkward concept you have to grasp is that of an operating system (OS), which is a sort of management language for the computer. In the same way you may have used Basic to create a file handling program, the OS will handle all your Basic programs, as well as any data files, script files and other languages.

It acts as a middleman between you and the hardware of the Amiga, and without it that's all the Amiga is – a heap of hardware. By having a multi-tasking OS, the Amiga has more in common with mainframes than it does with feebler micros. Indeed, AmigaDos is based on Tripos, an operating system pioneered on a small mainframe computer at Cambridge University.

Your way into this OS is through the CLI. From WB you can order your programs by putting them into different drawers. All your pictures should go into a DPaint, Spritz or Photon drawer, depending upon which program you use. Basic programs should go into a Basic drawer. This makes finding everything so much easier.

Even if you are the type of person who tidies up by pushing things under the bed, and thinks the best way to organise a bedroom is to have the most often played records on top of the most often worn clothes, you should keep your discs tidy.

YOU can read a directory of the whole bedroom by standing in the middle of the room and looking around. To look at everything on a disc means examining everything, and this is tiresome. A pair of Reeboks is physical, a letter to your pen friend in Boston invisible.

But if the letter is in a drawer on the disc called Letters-to-Lucy, you'll find it straight away. The CLI way to do this is by creating a directory. Drawers and directories are the same thing, the only difference is that a drawer has an icon to be seen by Workbench. One thing you soon learn is to keep directory names short. So instead of calling the directory Letters-to-Lucy, call it just Lucy.

Remember, you can access drawers from the CLI but you cannot access plain directories from Workbench because they have no icon.

To create the directory you must use a CLI command. Makedir Lucy will create a directory which branches off from the directory you are in. But it does not put you into that directory. To look at any files which are there you need to use the CD, change directory, command.

Enter the Dir command and you will see *Lucy (dir)* listed on the disc.

▶

◄

Type CD Lucy and you will be moved to inside the Lucy directory. If you type Dir again you will see no files listed. You can get back to the previous directory by typing CD /, which will change "up" to the parent directory, the directory which contains the current directory.

All disc manipulation is easiest with two drives. Pop your day-to- day copy of Workbench – not the original, which should be in a safe place – into the internal drive, known as DF0:. Put this month's *Amiga Computing* cover disc into the external drive, DF1:. Open your Workbench disc and click on the CLI icon. This will put you in the top directory of the internal disc, which computer techies call the *root directory*, because all the other directories branch out from it.

Using the CD command you can explore the cover disc. Type CD DF1:, including the colon. The colon tells the OS that you are talking about a device and not just the name of a file in the current directory. Now type Dir. This will show you what directories are there. You can CD to any of them. Use the mouse to re-size the CLI window if it is too small.

It may look primitive, but in its incarnation as a Shell with Workbench 1.3, CLI can be your friend. The reason it is called a Shell is because it covers the CLI, making it easier to use.

AmigaShell users can replace a long series of opening drawers and mouse clicks with a line of type. They can start a program and get going without having to wait for the program to load and then summoning up the right file.

I'm writing this article using Protext. Now I won't be able to finish the whole lot in one go, so I'll need to reload the article at some time. I can either click on the Protext drawer, click on the Protext icon, call up the Project menu, select Edit mode, catalogue the files, highlight the November sub-directory, change directories, list the files, highlight UTW (which is the name of this file) and then load it. Or I can go into CLI, assuming I didn't startup in CLI, and type Protext/Protext FastHD:Protext/November/UTW. It works. I've just done it.

The computer knows where to look for everything because I've told it. Protext/Protext means look in the sub-directory and run a program called Protext. The next bit is the name of the file. It is called UTW in the November sub-directory of the Protext sub-directory.

SHELL is more than just a quick way of getting into programs, it offers access to the AmigaDos commands which allow you to view or delete files and directories regardless of whether they have icons.

In addition to this housekeeping, you can do some weird things. From the sensible List >PRT: DF0:, which lists the contents of a disc to the printer, to the silly Type >SPEAK: DF0:s/startup-sequence, which gets the computer to read out what is in the startup-sequence file.

The ">" symbol is a re-direction. Think of it as meaning "to". SPEAK: is a device. Remember that AmigaDos's heritage dates back to the time when computers and all peripherals were big expensive boxes. It thinks the printer, the screen and even individual windows are separate units.

You can use the Copy command to move data between these units. Using Workbench 1.3 the keyboard is a device called NEWCON:. You can make a simple typewriter with the command Copy NEWCON: TO PRT:. To stop everything that you type appearing on the printer, hold down the Ctrl key and press \. This Ctrl–\ is the AmigaDos character for the end of a file – it tells the Copy command that it has reached the end of the document you are typing and can stop.

Sceptics should bear in mind that some commands just aren't available from Workbench at the present time, like the quick formatting option. If you want to *re*-format a disc, that is totally erase a disc which has already been formatted, it is much quicker to do so in the CLI using:

```
Format DRIVE df1: NAME MyDisk QUICK
```

The QUICK option tells the OS just to rewrite the boot and root blocks of the disc, and not to bother laying down tracks for the actual data since they already exist. Another option, NOICONS, which you can type before or after QUICK, prevents a Trashcan drawer from being created, something else you cannot do from Workbench.

The Shell also allows commands to become permanently resident in memory, which frees single-drive users from the "Please replace volume Workbench in df0:" syndrome. To make the most common commands, CD and List, reside in memory enter the following:

```
Resident c:CD
Resident c:List
```

The c: before the command name is very important because it tells the OS where to look for the file – in the c directory on the disc you booted with.

Another useful feature of the Shell, and something which WB 1.2 users haven't got, is the Alias command. This not only allows you to rename a command to something with which you are more familiar – for example, PC owners may wish to use:

```
Alias Del Delete
```

in order to make the Delete command the same as its MSdos counterpart – but it can also be used to substitute for a long string of parameters. If I wanted to list only those filenames with a .doc extension for instance, I could create the alias:

```
Alias DocList List #?.doc
```

Now typing DocList will let me to see all the docs without looking through the whole directory, and without having to remember the unconventional AmigaDos pattern matching symbols, hash and question mark.

Additional parameters may be passed to the alias by use of square brackets. To abbreviate the Type command, for example:

```
alias T Type []
```

This allows you to enter T Filename to get the same result as Type Filename.

The proper place to put all your aliases is in the s:Shell-Startup file. In fact, have a quick look – Type s:Shell-Startup – and you'll find a few already set up. I've added these to mine:

```
alias bye endcli
alias del delete
alias md makedir
alias ls list nodates
alias dump type [] hex
alias print type [] to prt:
```

Get to know the CLI. By learning all the clever tricks hidden within the commands you can become much more productive. Why work so hard when you have a computer as powerful as an Amiga to take the strain?

USING PROTEXT

```
>-------!-------!-------!-------!-------!-------!-------!-------!--R
>LS 0          ; LINE SPACING ZERO
For instance, to go into Souvenir here,
>OC 27 102 6 ; SWITCH SOUVENIR ON
                                    Ah! Dolores on the Pyramids!
>LS 1          ; LINE SPACING BACK TO ONE
```

Figure I: Switching to Souvenir font mid-line on the NEC P2200

Playing with printers printers printers printers printers printers

Printing is such sweet sorrow... Or rather, it's not... Peter Ceresole shows you how printing can be fun

PRINTERS are important. Why did you get Protext? Why did we all get it? Why did we get computers? It's a well known fact, so well known that it might even be true, that more computers are bought for word processing than for any other use.

And Protext, the Amy, the second drive, the mouse, the rat's nest of wires and the list of commands blu-tacked to the wall are all simply ways of talking to the printer. Then the printer talks to the outside world. And that's the way it'll be till we go straight into the cerebral cortex.

If you want to know what *that* will be like, read Neuromancer and Count Zero by William Gibson. But till then, thank heavens, only printers count.

Nobody real reads anything off a screen. If you're in any doubt about this, ask yourself why fax has taken off the way it has, and why only freaks like journalists or people like us use Email or post discs.

So, the printer is more important than the computer. Definitely. By your printout shall you be judged.

If you use a Cray XMP and a DMP-1, then everyone will *know* you're a nerd. But with a Vic 20, Postscript and a LaserJet, you could write to Mikail Gorbachov. Or even to Raisa.

So the thought is this; if you want to do something, work out if the printer can do it, if necessary by going back and overprinting the last character, or by going into – shudder! – graphics mode. If the printer can do it, you can do it with Protext. It may not always be wysiwyg, but that's the price you pay for speed.

Protext, like all good wordpros, is terrific at talking to printers. For instance, printers come with manuals of varying opacity, but they all seem to include Basic programs to send codes to the printer. Forget it. Protext makes it a hundred times easier.

The direct way is to use the >OC stored command. For instance, I always fancied printing something really small. This trick will work with any Epson compatible. It was last month's parting shot, and it goes:

```
>OC 27 65 6 15 27 83 1
```

To save you looking it up in the printer manual, which could be a boring Japlish experience, the codes 27 65 6 change the printer to half linefeeds, 15 switches on condensed mode and 27 83 1 goes into subscript. The result needs a magnifying glass to read, is quite useless except for footnotes of an obscure kind, and is rather fun.

To unwind the effect, you put in the opposite codes.

Now you can do this another way. The subscript and the condensed codes are supplied in the printer drivers. So you could go Ctrl_xs and Ctrl_xc and have a stored command >LF 0.5. No sweat. But I find it easier to have the >OC line stored as a file called TINYPRINT_ON, and merge it where I want it.

There are other things. On the NEC P2200 that I use there are various fonts like Souvenir, OCR–B (the font we use for listings in *Amiga Computing*) and Super Focus, which kind of SHOUTS at you. They all have their codes, and you can switch them on with >OC. But that only works well if they run from the start of a line.

There is a way of using >OC codes to make something happen in the

middle of a line. It involves splitting the line at the change, putting the >OC command on the next line and then, below that, starting the new text at the correct column across the page.

If you set the line spacing to zero – >LS 0 – before, and reset it to one, or whatever you're on, after, then it works. Have a look at Figure I.

Geddit? It can be useful. But in general life's too short for that sort of thing. No, it's time to hack the printer driver.

The manual's useful here. What am I saying! It's always useful. Especially if you load your printer driver into Protext and sit there with the printer manual and the Protext manual together, having a good old stare. For example, I see that under "f" in NECP2200.PPD, which is the one for me, is the sheet feeder code. Now I'm not that rich, so in my case "f" is spare.

You can edit the printer driver file just like an ordinary text file, which it is, except that it's in Program mode. In this case I make the line:

```
cc 'f'=27,102,6 ;27,102,1
```

So now Ctrl–xf toggles between Souvenir (27,102,6) and Courier (27,102,1). But only on my NEC P2200, of course.

You can do exactly the same to add codes for your favourite printer manoeuvres. A good trick is to keep the original printer driver saved somewhere – it's on the master disc – and then experiment.

You don't have to get it right all at once, you can experiment bit by bit. Browse through the printer manual to see if there are things you'd like to do, and try them out with an >OC code. If you like it, bung it into the printer driver.

You can, of course, change the codes using the >CC "change codes" option, building up a file that you load each time to modify your printer driver. I've always felt that if you really want these changes, then put them straight into the driver.

One of the nicest tricks is to get the printer to draw the IBM double line box characters. The Amy supports single line graphic box drawing on screen, but I feel the double boxes are much, much nicer. If you look in a printer driver that supports the IBM characters – EPSON24.PPD for instance, on the September cover disc – there's a clearly labelled section that looks like Figure IIa.

Converting the EPSON24.PPD printer driver to do IBM double line graphics

```
rem Amiga line graphics
rc #95=#b3
rc #96=#b4
rc #97=#bf
rc #98=#c0
rc #99=#c1
rc #9a=#c2
rc #9b=#c3
rc #9c=#c4
rc #9d=#c5
rc #9e=#d9
```

Figure IIa

```
rem Amiga double
rem line graphics
rc #95=#ba
rc #96=#b9
rc #97=#bb
rc #98=#c8
rc #99=#ca
rc #9a=#cb
rc #9b=#cc
rc #9c=#cd
rc #9d=#ce
rc #9e=#bc
```

Figure IIb

The numbers on the right are the hex values for the IBM line characters. About the only thing I hold against Arnor is that it does everything in hex. I guess Mark Tilley must have funny hands.

Anyway, if you change the numbers so they look like those in Figure IIb you can use Protext's line drawing abilities to draw better boxes. I've saved the modified printer driver under the original name BOX.PPD. It's on this month's cover disc in the Playing-with-Printers drawer.

Next up is drawing the double line box characters on screen. Might as well keep this contemporary and wysiwyg and things like that...

Use the Symbol command, and an Exec file. Symbol defines screen characters. It's very simple to use indeed, but it helps to do a little preparation.

Take, as an example, the character that represents two lines crossing (generally called a cross, Brian). It is character #9d on the Amiga, which is sent to the printer as #ce, or 206 in civilised numbers.

It looks like the cross in Figure III and it is defined on screen with the 8 x 8 grid it is drawn on. It's worth making a file which is a pageful of these grids, about 12 of them, which you print and use to design any characters you want to get on screen.

The extensions to the right are to enter the numbers for each row of the character. A black square is a one, an empty square a zero. So the top row of the cross character is 01100110, which is binary for 102. The next two rows are the same, but the fourth is 11100111, which is 231. And so on.

It helps if you've got a programmer's calculator for the binary-to-decimal conversion. If not, never fear, there's one called PCALC in my drawer on this month's cover disc, along with a GRID I prepared earlier...

So the way to get that cross drawn on screen, instead of a simple cross, is to type:

```
symbol #9d 102 102 102 231 0 231 102
102
```

at the command line, and press Return. But you want to get a whole lot of characters redefined this way, and you want to do it without typing more than the strict minimum of stuff, so make up an Exec file.

Create a file in Program mode with all your Symbol commands, each on a separate line, with a carriage return at the end of each, not forgetting the last one. Guess who fell into that trap a few times. If you save it with the name, say BOXEX, then whenever you Exec, or better still just x, BOXEX at the command line, it will execute each line in the file in turn.

And because you want to load the new printer driver to print the new characters, you can add "pr box" as the last command. The complete listing is in Figure IV.

Now Protext will draw IBM double box characters on screen, and print them if your printer supports those characters.

If you want to revert to the standard screen presentation, you'll either have to reboot, which doesn't bear thinking about, or make up an equivalent file of Symbol commands called UNBOX which redraws the normal characters ▶

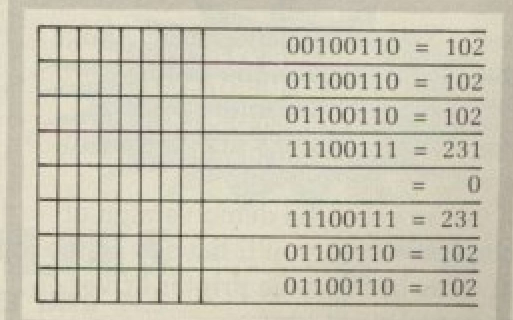


Figure III: Working out the Symbol numbers for the IBM double line cross

```
symbol #95 102 102 102 102 102 102 102 102
symbol #96 102 102 102 230 6 230 102 102
symbol #97 0 0 0 254 6 230 102 102
symbol #98 102 102 102 103 96 127 0 0
symbol #99 102 102 102 231 0 255 0 0
symbol #9a 0 0 0 255 0 231 102 102
symbol #9b 102 102 102 103 96 103 102 102
symbol #9c 0 0 0 255 0 255 0 0
symbol #9d 102 102 102 231 0 231 102 102
symbol #9e 102 102 102 230 6 254 0 0
symbol #9f 0 0 0 127 96 103 102 102 pr box
```

Figure IV

```
symbol 97 0 0 118 204 204 204 118 0
symbol 98 0 120 204 248 204 248 192 192
symbol 99 0 254 198 192 192 192 224 0
symbol 100 0 0 254 108 108 108 238 0
symbol 101 0 0 254 102 48 102 254 0
symbol 102 0 0 0 127 198 198 124 0
symbol 103 0 0 238 102 102 126 96 224
symbol 104 0 0 254 48 48 54 28 0
symbol 105 124 16 124 214 214 124 16 124
symbol 106 0 124 198 170 186 170 198 124
symbol 107 0 0 124 198 198 108 238 0
symbol 108 0 124 96 120 204 204 120 0
symbol 109 0 0 102 219 219 102 0 0
symbol 110 0 2 6 124 222 246 124 192
symbol 111 0 0 124 198 112 198 124 0
symbol 112 0 0 124 198 198 198 198 0
```

Figure V

```
symbol 97 0 0 120 12 124 204 118 0
symbol 98 224 96 124 102 102 102 220 0
symbol 99 0 0 60 102 96 102 60 0
symbol 100 28 12 124 204 204 204 118 0
symbol 101 0 0 60 102 126 96 60 0
symbol 102 28 54 48 120 48 48 120 0
symbol 103 0 0 62 102 102 62 6 124
symbol 104 224 96 124 102 102 102 230 0
symbol 105 24 0 56 24 24 24 60 0
symbol 106 6 0 14 6 6 102 102 60
symbol 107 224 96 102 108 120 108 230 0
symbol 108 56 24 24 24 24 24 60 0
symbol 109 0 0 108 254 214 214 198 0
symbol 110 0 0 220 102 102 102 102 0
symbol 111 0 0 60 102 102 102 60 0
symbol 112 0 0 220 102 102 124 96 224
pr necp2200
```

Figure VI

◄ on screen. You can't mix the single and double boxes on screen unless you reassign a second set of keys to do it.

What you *can* do is mix them in printing by using the stored command >PR BOX when you want the double boxes, and (say) >PR NECP2200 when you want to revert to normal.

In the meantime, the sky's the limit. Try typing in Figure V, saving it in Program mode as ABC and then eXecuting it. Note that I've abandoned hex in the interests of sanity.

Then type your alphabet, an appropriate term here. If you want to print this lot, change the printing codes by using >RC stored commands. Like this:

```
>rc "a" 224
>rc "b" 225
>rc "c" 226
...and so on until...
>rc "p" 239
```

Those stored codes can be saved as a file that is merged by an extra line on the end of Figure V.

By the way, there's a reason why I prefer to send the new box characters by modifying the printer driver – most of the key strokes have already been put in there by the bod wrote the driver for Arnor, so there's less work to do.

In the case of the "abc..." the Amiga codes are the same as the printer codes, so they're not in the printer driver. In that case, it's just as easy to use >RC.

If you're using the demo version of Protext, however, you'll have to go the >RC route because the printer driver may be too big to load.

You'll appreciate that to get back to the standard screen font you'll have to have an Exec file that restores the standard characters. This is not trivial, but Figure VI should get everything back to normal.

Finally... oder endlich, as they say in Prowort... graphics in Protext. Yeah! Although Protext has this wonderful relationship with printers, graphics by numbers are frankly hell.

In quad density they're just ridiculous. But on the right day they can be rather fun. I think it needs a lot of time, rather like re-reading all of Hardy's novels on holiday. Does anybody really do that? I know some of my friends claim to....

As a straight bit of vainglory I did my signature, in double density. I could have had a go in quad density, using all 24 pins, but so far no day has appeared on which it might be fun.

It requires preparation, again.

Print a grid, as before. This time it has to be bigger, but that's OK because I've done it for you. It's in my drawer called BIG-GRID. If your printer can't handle IBM line graphics, you'll have to photocopy Figure VII instead.

The lines to write the numbers on stick down instead of sideways because that's the way the printer reads the bytes. Now, you draw whatever you want to reproduce over the grid, remembering that it will turn out two characters high in this case, and be as long as you have the patience to make it. The grid in Figure VII is nine characters long.

After you've drawn your masterpiece or signed your name very big, work out the binary numbers represented by the black squares, in columns rather than rows, and write them down. You'll have two numbers in each column, one for the top eight squares, the other for the lower eight.

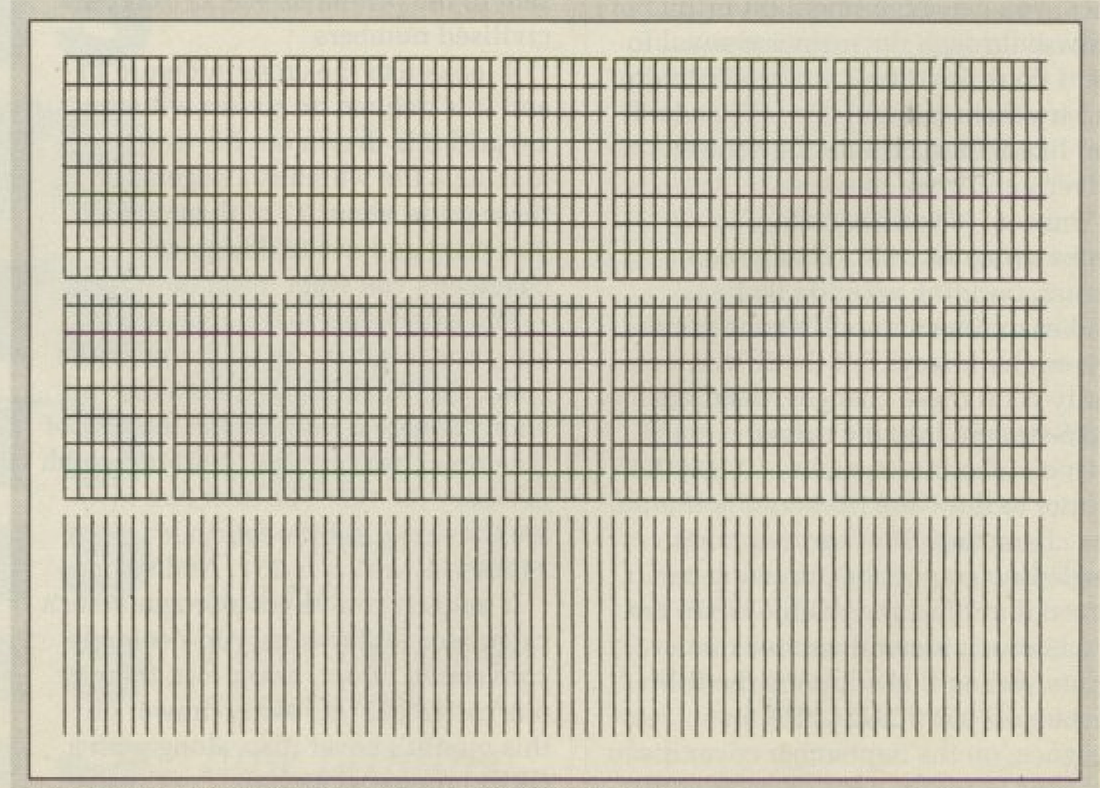


Figure VII: The grid for preparing your printer signature

Then send the codes to the printer line by line.

When it came to do a signature I chickened out and kept it small, one line high. The codes in Figure VIII are for an Epson compatible, in 24 pin mode. You need to load it in and print it.

The first code is a gentle printer reset. The next line sets the printer head to a position where I want the signature to start. The third line puts the printer into graphics mode (24 pins, double density) and tells it how many bytes of data are coming. After which comes a football field full of data.

All this could be in one damn great >OC statement, but that's a nightmare to enter, so I prefer to break things up.

As you can see, it's a terrific sweat. The result is shown in Figure IX.

It ought to be possible to do letter headings and such-like. But unless you're a true masochist, not this way.

I suspect the best would be to use a drawing program and adapt the screen print program to send the codes to a disc file. I can't believe that this would present too much trouble to a programmer, which I'm definitely not. Then you could get the codes you wanted into an >OC file. It sure as heck wouldn't be wysiwyg, but it might have its charms.

Figure VIII

In the meantime, Figure VIII lives in my drawer on the cover disc as SIGNATURE. It works. It's no earthly use. I guess it's a perfect example of playing with printers.

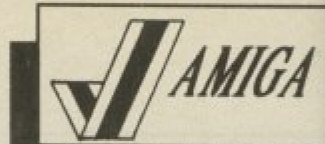
● *NEXT MONTH: Getting comfy with Protext. Wallowing like a little pig in sugar.*

```
>oc 27 64
>oc 27 36 120 0
>oc 27 42 33 110 0
>oc 0 0 7 0 0 7 0 0 14 0 0 14 0 0 224
>oc 0 0 224 0 3 128 0 3 128 0 13 2 0
>oc 13 2 0 49 15 0 49 15 1 194 49 1
>oc 194 49 6 4 193 6 4 193
>oc 24 27 6 24 27 6 96 124 12 96 124
>oc 12 129 240 48 129 240 48 127 193
>oc 192 127 193 192 3 6 254 3 6 254
>oc 12 15 3 12 15 3 16 112 2 16 112
>oc 2 97 192 4 97 192 4
>oc 131 0 8 131 0 8 12 0 62 12 0 62
>oc 16 1 195 16 1 195 32 2 6 32 2 6
>oc 64 13 24 64 13 24 128 14 96 128
>oc 14 96 128 1 128 128 1 128 0 2 12
>oc 0 2 12
>oc 0 4 243 0 4 243 0 11 4 0 11 4 0
>oc 28 8 0 28 8 0 0 30 0 0 30 0 0 99
>oc 0 0 99 0 7 141 0 7 141 0 9 16 0 9
>oc 16 0 14 100 0 14 100
>oc 0 0 141 0 0 141 0 1 26 0 1 26 0 6
>oc 225 0 6 225 0 11 2 0 11 2 0 28 14
>oc 0 28 14 0 16 113 0 16 113 0 33
>oc 131 0 33 131 0 2 12 0 2 12
>oc 0 4 56 0 4 56 0 7 192 0 7 192 0 8
>oc 0 0 8 0 0 48 28 0 48 28 0 65 231
>oc 0 65 231 0 135 4 0 135 4 1 56 24
>oc 1 56 24 2 192 124 2 192 124
>oc 5 0 130 5 0 130 14 3 131 14 3 131
>oc 24 13 4 24 13 4 32 17 4 32 17 4 0
>oc 33 8 0 33 8 0 32 8 0 32 8 0 0 16
>oc 0 0 16
>c 13 10 27 64
```

Figure VIII







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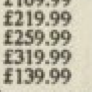
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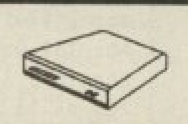




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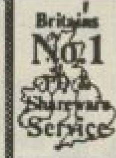
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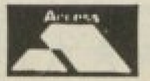
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TO ORDER PLEASE USE THE FORM ON PAGE 121

BEAT the

Filled with frustration while DPaint fills with a pattern? Worried by caffeine consumption during ray tracing? Perhaps the answer is an accelerator. Rupert Goodwins looks at one go-faster board that gives any Amiga a boost up the benchmarks

BACK in the days when computers were science fiction, a man called Parkinson formulated a law: "Work expands to fit the time available". He would be pleased to note that the same holds true in the Silicon Age – as manufacturers churn out faster machines, the software that uses them eats every ounce of performance and still leaves us poor users asking for more.

While 10 years ago, micro owners sat around waiting for their Pets to reformat a page of text, nowadays we all make coffee while the computer rotates a complex, three-dimensional picture of an aardvark. It's true of all computers, but on a graphically superb, multi-tasking Amiga it's even easier to run out of processor steam.

The official cure for the wait-a-bit woes is a more expensive, faster computer. Unfortunately Commodore has been just as tardy in producing anything with more whizz than the 7.1MHz 68000 for the Amiga 500. The MHz is the indication of speed – one MHz (megahertz) is one million "ticks" a second.

THE 68000 processor can take anything from 4 to 158 ticks to do one machine code instruction, but the average is somewhere between 8 and 16. Thus a 68000 at Amiga speeds can manage rather under a million instructions a second, although in practice the video and audio bits can slow things down more than a little.

So how about buying a faster processor chip? The Third Coast Technologies accelerator is just that – a board with a 16MHz 68000, some extra bits to link it into an Amiga and to generate the 14 million pulses that drive the whole lot along. It comes with a discful of software, and a rather small manual.

Like all accelerators, it requires you to disembowel your Amiga – and thus your guarantee – so it's not suitable for those with screwdriverphobia. However, for those bold enough to wield a 10 Torx (the special tool needed to prise an A500 apart), installation is fairly simple.

Once the top of the case is off, and the extensive tin sheeting that shields the circuit board removed, the existing 68000 chip has to be extracted. Commodore has so far socketted all its 68000s, so it's just a matter of taking a small screwdriver and levering out the chip.

The accelerator board plugs in its place; the only problem I encountered was that a number of components on the board around the socket were as tall as the original 68000 and would short against the new board.

My solution was to carefully bend away as many of the components as could be so bent, and provide a sheet of plastic to insulate the bottom of the board – but there's nothing in the manual about this and if I hadn't spotted the problem there could have been a very expensive firework display.

Once plugged in, the Amiga should work as before. Until you run the special software provided, the board runs at the same speed as the original chip and this should mean that all software works as before.

Certainly, with the accelerator installed but not activated, all my games,

CLOCK

utility and general purpose software worked as if nothing had changed. Compatibility, in this respect, is excellent.

Nobody pays £150 for a board that successfully emulates a slow 68000 though, so the next step is to kick in the high-speed mode. To this end, a program called PA is provided. Click on it from your normal Workbench screen and the chip switches over to 14Mhz. Click again, and the chip goes back to the normal, slow, compatible rate.

If you use the CLI to run PA, you can give it some parameters, which produce information about the system, control the speed or the optional mathematics chip.

The maths chip option – not provided with the review board – is designed for people who intend to do a lot of floating point mathematics on their Amiga. It uses a Motorola 68881/2 chip, which does in hardware what the Amiga normally does in software.

It's like having a calculator to do long division instead of working the sums out by hand, and can give spectacular increases in speed with certain software. Since this includes Workbench 1.3, a lot of software, such as Hisoft Basic, automatically caters for the maths co-processor.

In some cases it's possible to go hundreds of times faster, but only with software that spends most of its time squirting very precise numbers through formulae.

Most people don't need a 68881; for those that do, the fact that this board makes it possible to plug one into an Amiga should be reason enough to buy it. Be warned, though, that there are no details about the hardware installation in the instruction book, so you'll need to get in contact with the distributors first.

There's plenty about the software implications of installing the chip, however, so you should be able to work out whether your software will work faster or not.

Other software on the disc includes a few demos and a couple of tests. The demos are simple and unexciting, apart from a PD Mandlebrot program (MandFXP) which is as beautiful and intriguing as the mathematics it demonstrates.

The Mandelbrot set shows a whirling, contorted pattern that gets more detailed as you zoom in on a feature – it's an excellent test of a computer's graphical and computational prowess. With the accelerator board in, the Amiga finishes a screen between 30 to 40 per cent faster than before.

The computer doesn't go exactly twice as fast, because the processor has to share the memory from which it reads instructions with all of the other special Amiga chips.

These chips control sound, display, disc drives and other parts of the computer, and all of these need to be able to override the processor in effect turning it off while they do their jobs.

FITTING everything together is one of the big problems of computer design, and the Amiga does it rather well. This does mean that increasing the speed of just one part of the system won't speed everything up, and that the most you should expect from the processor accelerator is around a 40 per cent increase.

Lots of software won't exhibit even this, although anything that waits for the processor to work things out will benefit.

Programs that work better include Pixel Paint, Deluxe Paint III, AmigaBasic, Devpac, anything that writes a lot of text on to the screen, Sculpt and others of similar ilk. Games don't benefit much, both because they tend to use their own loader programs – and thus never give the user a chance to run PA – and also because they can be tied to the speed of the computer's video display.

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Some, like Battle Chess, do work better.

There is a switch on the board itself that forces it to start up in 14MHz mode. While using it like this I didn't find any incompatibilities, even in famously badly behaved programs, but there's always the chance that, once the Amiga's case is back together, that a game will be found that refuses to run.

Another switch on the board speeds up the computer when it's using its rom and this helps with anything that runs under the Workbench and uses a lot of the Amiga's own windowing functions.

The board itself, the documentation and the state of the disc with the software on all point to the review version not being quite shippable. Everything works, but the board has various last-minute wire patches, the serial number's written on a splodge of Tipp-Ex and it all looks a bit hasty.

The board will be most attractive to people who are doing a lot of computation, whether for its own sake or with graphics thrown in as well.

I can see it finding a home in video, where valuable time is wasted as the ordinary 68000 trudges through another client's logo rotating against a sea of green, in universities and for the keen developer.

THE design seems solid, and compatibility not a problem. The games players out there will be better off buying that extra chunk of memory or a disc drive, although the keenly competitive might relish having a turbo-charged Amiga just for pose value. For this market, it might help if Third Coast printed some sticky badges to adorn the outside of the computer.

More seriously, the accelerator is a nice product with well-defined areas of appeal. I'm going to miss it – especially when exploring the deeper recesses of the Mandelbrot set – but nowhere near as much as I miss that hard disc. And no, before you ask, it doesn't speed up those floppies...

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Communicate with Commodore

Simon Rockman explains where you can get free help

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THESE immortal words weren't written about Commodore UK's technical support department, but I'm sure that if Paul McCartney had been an Amiga developer instead of the greatest lyricist the world has ever known he would have been thinking about Dr Rahman Haleem.

The good doctor will cure your programming ills if you are a commercial Amiga developer. Commodore Amiga Technical Support (CATS) exists to help promote programming on the Amiga.

The department issues regular updates on changes and revisions, it has full documentation for the Amiga and system software including notes from developers' conferences around the world. You can get early versions of new software releases – registered developers were the first people to have Workbench 1.3 and some already have test versions of 1.4.

You can't be expected to own all the different combinations of Amigas, ram expansions and processor cards, so Commodore provides a laboratory for registered developers to use if they want to test a program.

Developers are allowed to buy limited quantities of development equipment at a discount and Commodore will spread word of your work around the development community – provided you want them to, of course. Possible marketing opportunities could arise world-wide. CATS advice is to think European Market.

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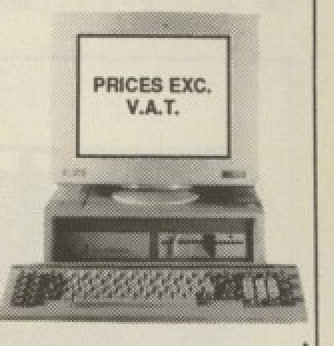
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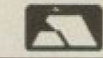
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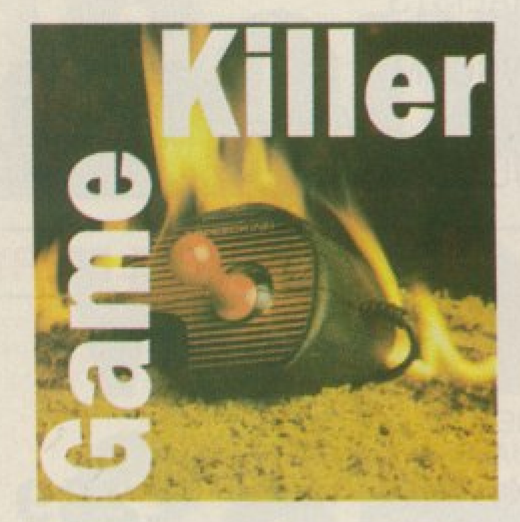
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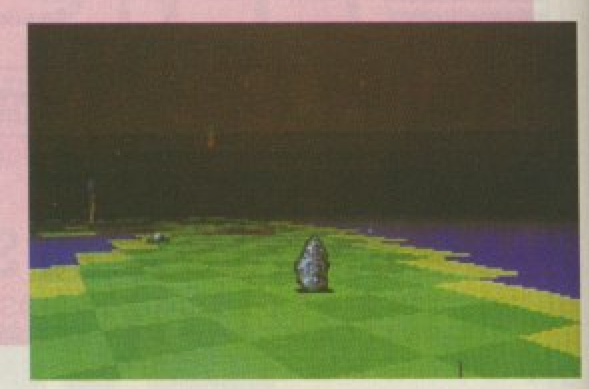
Tips and cheats

Max "The Hacks" Tennant presents winning ways for the games he plays

Archipelagos

EXPLORE brave new islands with the Archipelagos cheat. You have to solve Archipelagos one and two. Press return to select an archipelago and type 8421 and press Return. Press Return again and you can select any archipelago from 1 to 9999.

Every fifth archipelago in the first 100 is the most interesting, as these have been pre-designed by the programmers. There are many very tricky and highly complex island complexes to be seen.



Indiana Jones and the Last Crusade

HERE'S a way to make that crusade for the Holy Grail more than a little bit easier. Remember the bit in the film where Indy has to walk across a crumbling floor? The letters that are safe to tread on spell out IEHOVA. Type this string into one of the loading screens.

You only have a short time to do it and, like Indy, only one chance. Getting this right is more than a little tricky. If it does work – and it is unlikely that it will first time around – you will have infinite lives.

To get the icons press I and to skip a level press L. You can fast forward through a level by pressing 2. Use this and the quest is more like a stroll in the park.

Krystal of Kronos

MARTIN Hemming from Redditch has written in with an observation about The Krystal. If you make Sir Dancis Frake face away from you and leave the machine alone for 30 seconds his trousers will fall down. Thanks Martin. A game and a Speedking are in the post to you.

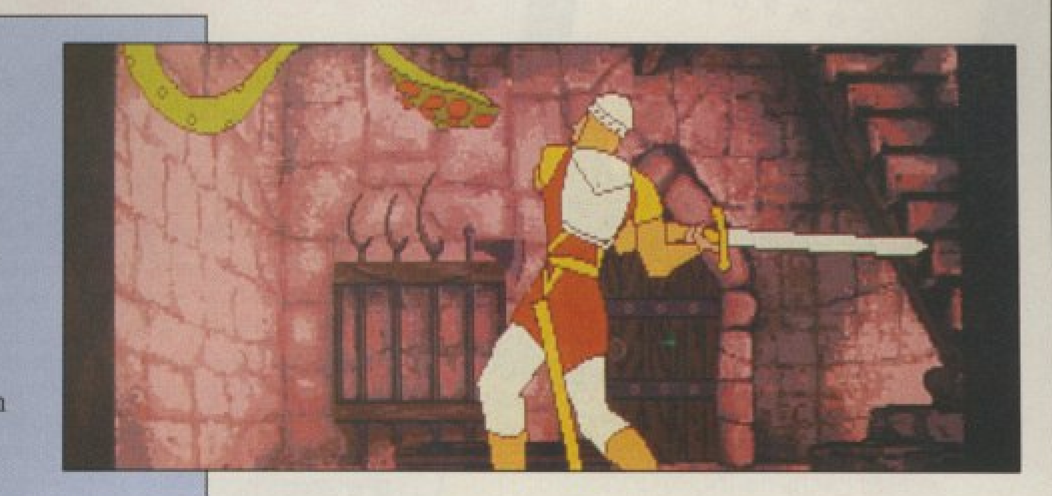
Forgotten Worlds

GET further in US Gold's over-rated scrolly blast with this tip from B. Mitchell: Type ARC then press the Help key while on the title screen. This will load up a two player game. During play press the S key to go straight to the shop and the N key to skip to the next level.

Dragon's Lair

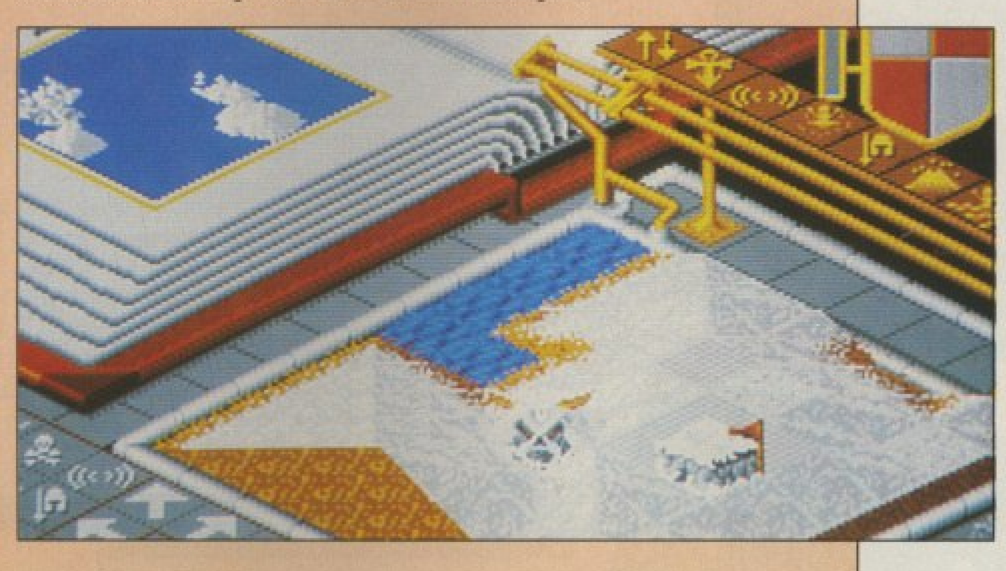
KARL Donovan from Berkshire has written in with a complete solution for Dragon's Lair. It isn't one of those long-winded solutions that gives a load of joystick movements, simply a key combination.

Press ESC R / L N 7 simultaneously just after the credits finish loading and the screen will flash, then press the joystick button. This produces a demo mode which runs the game from start to finish, letting you see those last few screens.



Populous

THIS tip from Mr Mitchell is a long list of Populous worlds, which brings to a close the tips on Populous, I'll just list the last few: 451 Timoxlug, 455 Killuing, 460 Bilemet, 467 Bugikeend, 470 Bindeond, 478 Suzylow, 486 Swakoppal, 493 Ringapal and finally 494 Weavuspert. There is also a special level: 999 Killuspal.



Chariots of Wrath

RESCUING a princess is all in a day's work for the player in Chariots of Wrath. So what do you do if you want to skive off? Well princesses still have to be rescued, but with infinite lives it is so much easier, and getting those infinite lives is not at all difficult, as Mr J Gower found out.

Push the joystick forward when you are first asked to press fire and you will have more lives than you know what to do with.



Out Run

SPEEDING along in the fast lane is fun, but it can be even better with this tip from Mr Mitchell: During play type RED BARCHETTA, including the space. Now you can press S and go to the next stage, or press T for more time.

Write to Max

GAME Killer is always on the lookout for hot tips, so if you have found a cheat mode, bug or written a poke then drop it in the post – on disc if it is a long listing. If your work is used I'll send you a game drawn at random from the goodie box and a Konix Speedking joystick.

To speed up getting the prize to you please cut out, photocopy or copy this form. It will be used as the address label to send out your parcel. Send the form to Max "The Hacks" Tennant, Game Killer, Amiga Computing, Second Floor, North House, 78-84 Ongar Road, Brentwood, Essex, CM15 9BG.

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"The graphics are wonderfully drawn and smoothly scrolled in all directions. Every landscape is a joy to look at and explore... delicate, addictive gameplay". – John Kennedy, Amiga Computing.
TO ORDER PLEASE USE THE FORM ON PAGE 121
Raider

AMIGA Letters

The dreaded lurgi

RECENTLY my Amiga has been doing strange things. Tell me if this is the work of a new virus. After a while programs on the disc – generally in the c and libs directories – start to develop read/write errors. If I install a disc with the noboot option, a boot track is re-written.

VirusX 3.10 cannot detect any virus and nor can Virus Killer, and Install Check says its legal. Surprisingly it seems to have no effect on non-standard discs, such as games.

Paul Kerrigan, Coventry.

Sounds like an attack of IRQ. A copy of VirusX 3.20 will fix that. There is a similar, non-boot block virus which VirusX cannot spot. This produces messages about Greenpeace, and you'll need to be something of a programming wizard to get rid of it.

Wrong route

FAT Angus (Sweet PD, July 1989 *Amiga Computing*) must have been on something stronger than Britvic if he believes that his Londonward rail journey from Birmingham New Street took him to King's Cross.

Perhaps he should take up train spotting.

Glyn Williams, Sinfin, Derby.

Brilliant! Well spotted. There are two games in the post to you.

Sick mouse and slipped disc

IF you have problems with the buttons on your mouse, open the case and put a 1mm piece of card, cut to the approximate size of the silver contact, on the leaf contacts, then replace the screws.

This works because the upper leaf sometimes becomes indented from where the point of the button is continually pressing down on it. The piece of card ensures that the whole leaf is pushed down instead of just a single point.

Recently I bought some "lifetime guaranteed unbranded" discs, only to find that half came up with read/write errors when I tried to format them.

Diskdoctor didn't have any effect, so I tried the Discwipe function found on the Project D utility followed by Diskdoctor, and they all formatted without a problem.

V S Kirby, Stanmore, Middx.

Thanks for the tips. Some discs are formatted as part of the testing process. Because this is not the same as an AmigaDos format it can cause problems. A few attempts at using format might erase all the unwanted information.

Beware false Icons

I WANT to use IconX. I have made an icon image, changed the default tool to c/iconX, copied IconX into my c directory. When I boot up from the disc and double click on the icon it loads IconX but does not execute my batch file.

If I boot up with Workbench with the disc in the other drive everything works correctly. Please could you tell me if there is something else I need of the Workbench to make IconX work.

I am very pleased that you now offer a disc on the front of the magazine. Here are my ideas on what you should include:

A game demo (one is enough), a dark blue Workbench screen, some better icons, another text file viewer, a bit more documentation on the programs, one or two public domain programs on disc.

Any chance of an assembly language course? The overall magazine is very good.

Andrew Wood, Sittingbourne, Kent.

Well, if you will persist in reading other magazines you'll be fed duff information on how to use IconX. The program needs RUN and CD copied from your Workbench disc. You should either put them in the root or the C directory. Thanks for the comments on the disc.

Suffering CLI

HAVING only owned my Amiga for a few months I am having some difficulty understanding the manuals. I can't understand CLI, apart from the simplest commands. If you could do a series covering it I would be most grateful. I find my Workbench 1.3 manual impossible to understand.

How do I use the utilities and Basic program on the disc that came with the August issue?

Duncan Hayes, Higher Blackley, Manchester.

If everything on the disc was geared to new users it would soon get boring, as new users became old hands. The best bet is to get hold of the book Amigados by Mark Burgess. It is published by Dabs Press at £14.95.

Your bookshop should be able to order it if you quote ISBN 1-870336-47-X, or contact The Computer Store on 021-770 0468. You may be having problems finding programs on the disc because they are in directories. You'll need to use the CD command to get to them.

The Basic program is also in a

►



◄

subdirectory on the disc. The AmigaBasic manual is quite good, read up on how to use the Chdir and Files commands, then load the program from the cover disc into AmigaBasic.

There are a few lines which cause syntax errors. If you delete them everything will be tickerty-boo.

Digging through discs is very much simpler if you have a second drive, and answering your questions is easier if you tell us what kit you are using.

Mastering graphics

WHEN I was at school I wrote a horse racing game on a BBC Master. I have since converted it to my Amiga. I used a user-defined character for a horse, and progressively moved it from one print position to another across the screen.

I have the whole game, addictive as ever, working fine, except that I have stars running about. I would prefer to have all the realism of having real horses losing me money.

Ralph Bolton, Guildford, Surrey.

Programming the Amiga is a fair bit harder than programming a Beeb, but the results are worth it. Pages 88 to 94 in chapter 8 of the AmigaBasic manual detail the Object command.

You will have to use the Object editor to draw the horse, but then from inside the program you can make all the horses move smoothly.

Lost for words

HAVE collected more than 70 extra fonts on two discs and use them with the Workbench Notepad with good results.

However, I cannot find a way of incorporating these extra fonts when using KindWords2. I would like to use them via the external disc drive but I cannot get KW2 to read fonts.

Derek Oakley, Middlesbrough, Cleveland.

Well done, we've never met anyone who has had good results from Notepad before. KindWords only supports its own Superfonts. To use proper Amiga fonts have a look at Excellence or Pen Pal.

Who was that?

YOU don't know your left from your right! The picture on Page 37 of the September issue looked a lot like Jez San and not Dave Parkinson. And the one on Page 36 looked just like Dave and not Jez. I think you have made a mistake.

Wendy Mountford, Mill Hill, London.

Yes, guilty, slap on the 'cuffs, sorry, I'd send you a prize for being so observant, but as you have been going out with Jez for nearly two years I'd hope you could tell the difference.

Joining forces

VERY good mag, the August issue, plus a good disc on the cover. What sort of lead would I have to use to connect two Amigas to play Populous? Where would I get hold of one? I believe you have to use the serial port.

Secondly, in the Gauntlet II package it describes the use of the printer port to control two more joysticks with the game. I rang the people at US Gold but they said it was just an Atari ST feature.

Does anyone know a way to use this on an Amiga and if so where to get a suitable interface to control the four of us who want to play?

Cpl Elsdon, Coldstream Guards, Camp Administration Staff, Moscow Camp.

Wow, we've never had a letter from Moscow before. Trilogic does a suitable lead for connecting two Amigas, and had an advertisement on Page 81 of the September issue where it was listed as an RS5 costing £7.99. You can call Trilogic on 0274 691115. Sorry, can't help with the Gauntlet problem.

Bound over

SINCE I bought the first issue of *Amiga Computing* when visiting London, which sure is bigger but not nearly as beautiful as Helsinki, I've been a subscriber to it (not London, the mag). *Amiga Computing* is definitely the best Amiga specialised mag available.

But where have the great binders of yours vanished to? I haven't seen any advertisements for them despite the 41 pages of ads, is this a trick to sell back issues when readers have lost their old ones?

My first little problem is a lead. I'd love to use my monitor A1081 as a TV set, and managed to do this via a video recorder. But because I don't need a video, I'd like to have a little tuner for selecting channels and a lead from the antenna socket to my monitor. Is this reasonable, or should I buy a cheap video?

The second problem is somewhat strange. As I recently made a little Basic program, I needed to use my printer, NEC CP6, which usually is great – more dots than most lasers, with colour.

But when I tried to guide it with escape codes, nothing happened. Word processors can do it and graphics programs can do it, I can't.

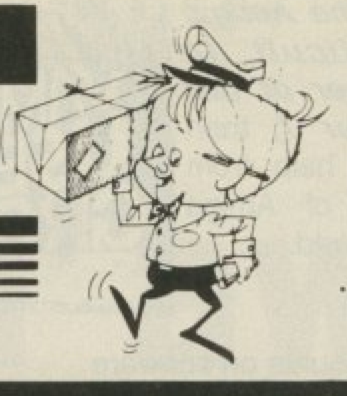
Kalle Saariaho, Kirkkonummi, Finland.

Right O, my fine Finnish friend. Binders cost £4.95. They are always available from Database Direct at the address on the order form near the back of the magazine.

A few TV tuners are available, Philips do one, but the best buy is probably the Microtext adaptor which offers teletext. We reviewed it last February; it costs £143.52 for the UK version and £194.93 for the international unit.

Your last problem is Microsoft's fault. AmigaBasic won't LPRINT escape codes, you need to talk to the printer as a device using OPEN "PRT" FOR OUTPUT AS #8 *and then print to it using* PRINT#8, *although just testing this out crashed the machine. AmigaBasic is one of the nastiest, bug-ridden programs to grace the machine's ram.*

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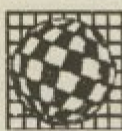


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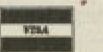
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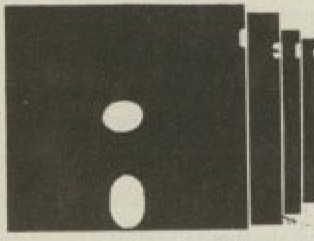
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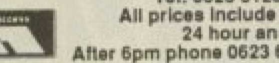
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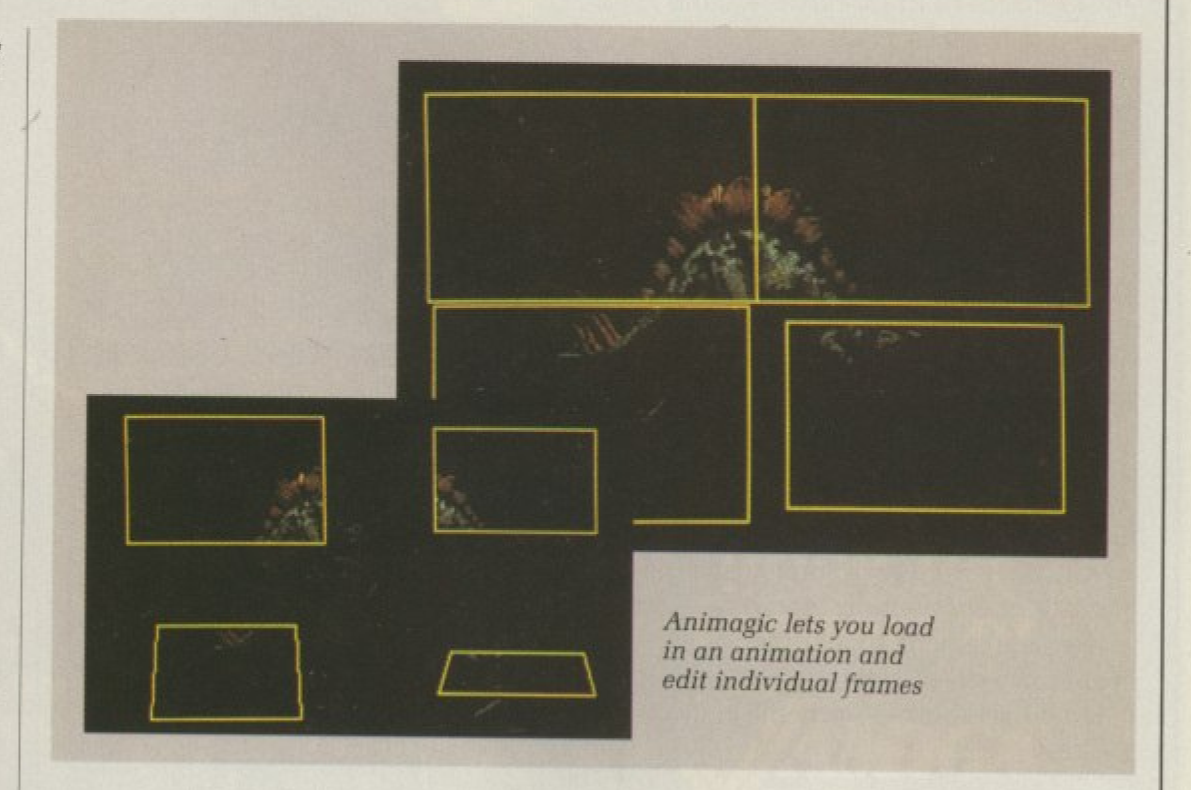
John Kennedy creates some special effects with Animagic, but finds that his memory lets him down again

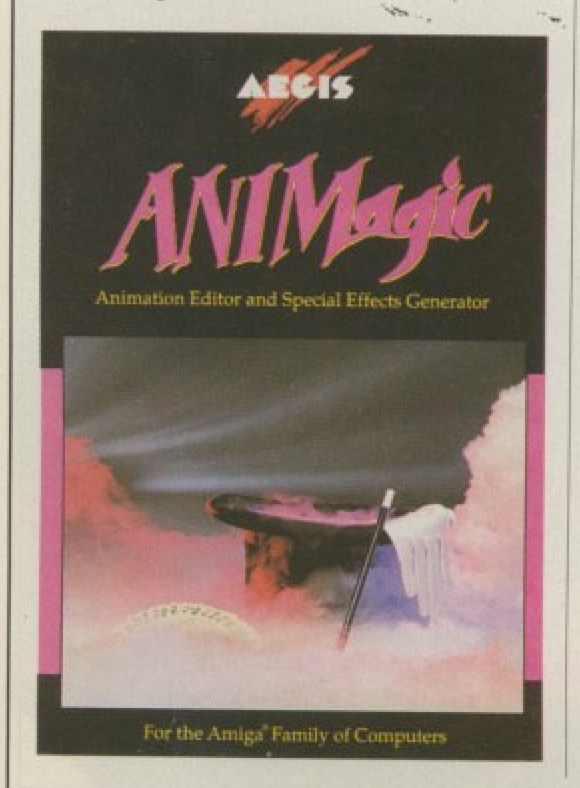
ONLY on the Amiga could this happen. Here is an art package that needs at least one megabyte of memory to run, but won't let you draw anything. Here is an animation package that won't do tweening. Here is a large box containing two discs and a 90 page manual. So what does it do?

Animagic is an editing package for animation files. It takes pictures and animations created with other packages and puts them through a digital effects unit.

Through the wonders of interchange file format (IFF), Animagic can be used with any of the animation packages available for the Amiga which save data using the Anim protocol. Such programs include VideoScape 3D, Lights! Camera! Action! and Deluxe Paint III.

Zoetrope, which received a rave review several issues ago, comes with a program to turn its animations into Anim format. MovieSetter uses its own format and is not compatible.


Animagic lets you load in an animation and edit individual frames



Animagic allows you to load in an animation and edit individual frames. You can take the last few frames of that huge cartoon you rendered with a 3D package, and instead of re-doing the entire thing, which could take several days, you can adjust frames individually.

Or what about adding titles to your animation? Easy, just append the text frames. You can also adjust the colours and create colour- cycling animation.

Although editing animations is useful, the really fun part of the package comes when you start playing with the digital effects editor. You can't have failed to notice digital video effects (DVE) on television. Take a look at the opening logos of the various ITV stations for example. If a logo zooms in from the left or constructs itself out of tiny squares, then you're looking at a DVE.

Top of the Pops would be sunk without its DVE machine. As the various camera images all peel back to reveal the latest appalling number one, busy in the background several thousand pounds worth of electronics is beavering away, folding Kylie Minogue's face into small pieces.

The Channel Four logo, where lots of pieces fly in to form the shape of the numeral four, is a computer animation rather than an effect.

A digital video effect machine takes a finished drawing and manipulates it electronically, usually through a very expensive mixture of both analogue and digital computer technology. It is this machine that Animagic tries to emulate, using your beloved Amiga and as much bolt-on memory as you can afford.

You are supplied with a fixed number of DVEs, all stored on disc. This may seem limiting, but the huge number of possible variations will mean that you are rarely stuck for an effect. Once you have tailored the effect to exact requirements, you may save it back to disc for future use.

One of simplest DVEs is the slide-in. The picture moves in from underneath in a slanted perspective view and expands into the centre of the screen. By selecting the Grid option from the DVE menu screen you can split the initial image into four separate screens that slide in. Then you can give each a progressive delay,

▶

◄

so first the top left quarter slides-in, then the top-right and so on.

Or would you rather they slid in from the top of the screen? No problem, just click this little unidentifiable icon and they float in over your head in exactly the same way that bricks don't.

A preview option will display your effect in wire frame, which avoids wasted afternoons as the computer renders your animation after which you decide you don't really like it.

Other DVEs include spinning and expanding routines. And you can lift away one picture in a page-like fashion revealing another image underneath.

Shadows can be added, so all the little parts of the image flying around will have little boxes of colour following them. A strobe effect is also available, where each frame carries a vestage of the previous drawing. This makes movement appear much smoother and interesting, although it takes a lot longer to draw in the first place.

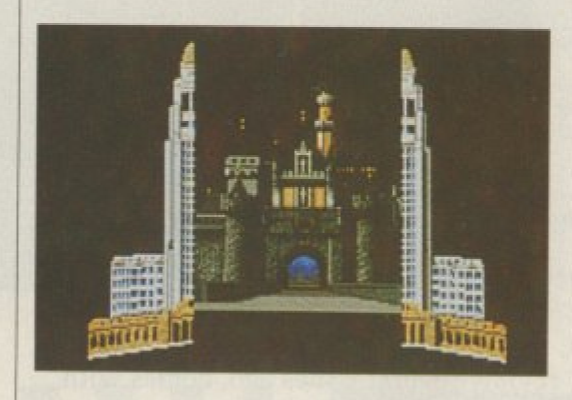
VARIOUS three-dimensional effects are available, such as a rotating box with two of your drawings appearing on the inside and outside faces. When turned into a continuously looping animation, this sort of spinning effect is ideal for a moving company logo at the start of a film, or even just sitting in a shop window.

Where the DVEs become really cunning is that instead of loading in a still picture to process, you load in another animation. This means the original moving pictures will be dealt with as though they were a static display, which results in some seriously weird and wonderful animations.

Using Animagic is a little daunting to start with. When it first boots up you are greeted with an opening screen and an error message to the effect that you haven't specified a start drawing or animation. This doesn't really seem fair, but after apologising you can load your data and the program will grudgingly let you use the main control bay.

This Huston mission control lookalike is littered with tiny icons. The designers of the Wimp environment would turn in their mouse houses if they could see this display, because rather than simplifying things all the controls do is intimidate the user. What is the point of several icons which all look the same performing different functions?

Eventually you get the hang of what



a particular left pointing arrow does, but it takes time and a lot of looking up in the manual. As such, the manual is very satisfactory, with lots of step-by-step examples and the obligatory American telephone help hotline. It might be marginally cheaper to fly out and discuss your problem with the programmers than use this phone number, but it is always nice to have the option.

Memory is a real problem. Although the animations are buffered to disc as they are created, the finished product must be able to exist in the computer's memory to be played back. If you want to play with an interlaced HAM digitised picture, then 1 meg isn't enough.

If you are the sort of person who is able to afford vast quantities of ram, then you will probably also own a 68020/68881 accelerator board. This being the case, you will therefore be completely overjoyed to hear that a version of the program is supplied to make full use of this hardware, which will speed things up accordingly.

Unfortunately the program does not have a robust feel to it. It crashed not just once, but several times, because I clicked too quickly on an expanding icon. Single drive users will gnash their teeth as the program gurus yet again simply because they forgot to swap discs before selecting an option.

This is nothing more than sloppy programming and should have been sorted out well before the package went on sale.

It won't crash straight away of course. First it will spend 15 minutes doing 99 per cent of the animation, *then* it crashes. Why do programs like this rarely look ahead to see if enough memory is available? The answer is because they don't know exactly how much memory they will need. But they could make a good guess, couldn't they? And give us the option to continue or try for something less ambitious.

THE average A500 user could have some fun with all the special effects, but will never be able to use the program to its best advantage without several megabytes of ram, a genlock and access to some hi-tech video editing equipment.

Nevertheless, for those who want to smash Uncle Fred's face into 255 spinning pieces, Animagic could be worth the asking price. It emulates a piece of television studio hardware called a digital video effects unit that costs several thousand pounds, and at the moment there is no software around that produces comparable results.

REPORT CARD

Animagic
HB Marketing 0895 444433
£79.95

***EASE OF USE*......**
With hieroglyphic icons and dodgy disc and memory handling, things could be a lot better.

***SPEED* ....**
Not fast. Add 3 to the score if you have an accelerator board.

***VALUE* ....**
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